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## Original Articles.

### THE INTEREST OF THE PUBLIC IN MEDICAL EDUCATION.


BY CHARLES F. PAINTER, M.D., BOSTON.


THERE is nothing which touches the nation, the community, or the individual more closely than matters pertaining to health; of the machinery by which the Federal and State Governments defend their citizens from the dangers incidental to disobedience of immigration laws and rules regulating importation of food stuffs, drugs, and many other things, the average citizen knows but little. If he thinks about them at all, it is with a comfortable assurance that the dangers are trifling and the chances of their touching him, or his interests, are not great. He regards such things chiefly as they may affect life or health, rarely in their economic and social relations as well. In the community, the abolishment of nuisances which threaten public health and the prevention and restraint of local epidemics are a real menace which we all take a little more to heart, and know a little more about the machinery for working out the solution of, than we do about Federal Health protection. When it comes down to the individual, his personal well being is a very vital matter to him, not alone for his own bodily vigor, but for the good of his dependants. It is a basic question, and upon it hinges more than upon any other one thing, his every activity and his entire happiness. He is surrounded with agencies of all sorts with which to fend off dangers and fortify himself against insidious attacks. Perhaps more people are actually obsessed about their health, to a greater or lesser degree, than about any other one thing in life, unless it be about amassing a fortune.

As a fundamental principle of every real defensive health measure, whether it concern the individual, the town or city, or the nation itself, lies the knowledge acquired and the skill developed by the experience and research of the medical profession. Anything, therefore, which lessens the value of the training accorded our youth, who answer the call to enter that profession, is of direct and personal interest to every citizen, no matter how humble his station in life. It is as much a matter of his concern as any problem affecting his civic activities. If one concedes the existence of such an interest in public health matters, then it follows that the public should be encouraged to think in terms of medical education. One of the serious faults of our educational system today is the fact that the conduct of it has been left too much to pedagogical experts who are so engrossed with theory and experimentation that they have little time to devote to the ascertainment of what the real needs of the public are. In the medical line, though we have been freer from interference by pedagogues, we have been gradually drifting into errors similar to those fostered by them in the general educational field.

Evidence has been accumulating for a long time that something is wrong with medical edu-

cation. About fifteen years ago, when it became apparent that there were a surprisingly large number of "Diploma Mills" scattered over the country, interest was aroused in various quarters which took shape in three organizations devoted to the betterment of the practice of medicine and surgery throughout the country. As a result of their activities, the number of medical schools was largely reduced and the enrolled matriculants in them correspondingly diminished. A great service was thus rendered to the public by wiping out the cheap grade school which was, in many instances, only a commercial proposition. The sequel of that has been the creation of a situation in the medical schools of today which has laid the ground work for the thesis that I wish to establish, and that is, that medical education is falling short of its high purpose and failing to fulfill its responsibility to the public, because it is tending to teach medicine as a science, and not as an art. The study of science will always be intimately associated with preparation for medical practice, but the human body is not a retort, and until it is, it will be impossible to plan the treatment of diseases to which it falls a victim and which have this body as their habitat, as if it were.

A second shortcoming of present-day education in medicine is its tendency to the overdevelopment of specialists. We are accustomed to exclaim about the wonderful progress which has taken place in recent years in medical knowledge, and well we may! We hear the assertion made over and over again, that no one, now, is able to grasp the sum of present-day scientific knowledge in medicine and that it is therefore axiomatic that the field which any one man may till is necessarily a narrow one. The motives prompting the early pioneers in the realm of specialization were unquestionably proper ones and the value of the application of individual research in many restricted lines in respect to the volume of information made available for the good of the public, has been past computation. The situation is not unreasonably comparable to the rush to the gold fields of California and Alaska, to which so many adventurous spirits crowded in search of a fortune easily to be obtained, or, at least, to be shortly acquired. The temptation to crowd into the realm of specialization was compelling. Interest in a search for something new and valuable was alluring. It is almost unbelievable that in so short a span of years the specialist in practice should have so appreciably crowded out the old-fashioned general practitioner—practically wholly in the large cities and towns—and curtailed the numbers of the really efficient ones in the smaller villages and rural communities. Great as have been the advantages in the information acquired and made available for medical students, this has not been accomplished without many disadvantages to the public at large, which are now beginning to offset the benefits. The time has come when the pendulum should swing back to a degree, with a consequence that less specialists shall be *turned out* and more men *trained* for general practice.

A third failing of our modern medical schools is to be found in the tendency which their methods have to encourage their graduates to feel that without the equipment of modern clinical laboratories, close at hand, it is impossible to satisfactorily engage in the practice of their profession. This implants in them a disinclination to depart far from centers where such facilities are readily procured.

I submit that we may reasonably claim that that system of professional education is failing in the attainment of its goal, which substitutes a false objective for the true one; which inclines to overload the field in which it operates with highly trained specialists, thereby increasing the cost of service to the public, and develops a class of practitioners who, through no fault of their own, are dependent upon a costly equipment, unattainable for the major part of the population to whom trained medical service is quite as essential as it is among the more favored, because wealthier, centers.

Before going on to discuss at greater length the above mentioned failings in our present educational endeavor along medical lines, it may be proper to call attention to two other minor shortcomings in the system. The first is that the time element entering into the present day curriculum debars from enrolling in the profession a considerable number of men who are of the sort from whom the best practitioners are developed. They can afford neither the money nor the time. The claim that scholarships are available for many such only partly meets the objection, for these can affect the time spent in no way, and do not carry over into that period of the first years of practice, which loom so large to a young man with a profession and all the ambitions he has for himself at 27 or 28. No one who has had any intimate acquaintance with the administrative affairs of a medical school can escape the conviction that a very considerable number of matriculants ought never to have been permitted to study medicine and this not at all on the ground of failure in scholastic attainments. Many come because their families have always had a physician to represent them and they feel that the line should be perpetuated. Others are recruited from families who have risen in the social scale through commercial success, and aspire to send some member of the clan into a profession. A few elect medicine because some college friend has done so or because in a university science course they had a morbid interest in the dissection of the earth worm or cray fish. Some apparently select

medicine for no reason at all; there is money enough at home, and after wasting four years in an academic course where they could rub along and have a good time into the bargain, they fondly hope that such a career can be stretched out for another four-year period. The representatives of these various groups, and they are more numerous than one would suppose, are drawn from that class in society for whom the question of time or money does not figure in the reckoning. The really solid, substantial, dependable practitioners will be found in proportionately much larger numbers in the middle-class ranks, were they not barred out by the cost element. Two years are now wasted in preparation to enter upon practice, and this represents a loss of two of the most fruitful years in a young man's life. He has passed the peak of his intellectual acquisitiveness before he can earn a dollar toward his support, and this is disquieting to any red-blooded adult when he stops to think of it.

The second failure, fostered by the ultra-scientific development of modern medical education, is the subordination of the methods of physical examination belonging to the olden days, to the up-to-the minute laboratory technique for the investigation of the same phenomena. Of course, auscultation and percussion are still taught, but where there is a short cut it is natural that it should be taken by the student. The employment of these methods can have no other effect than that of making him *lean* upon the supposed instrument of precision. The consequence is inevitable, one's powers of observations are not only *not developed*, they are even impaired, and in reliance upon specific tests there is less scope for the exercise of one's capacity for logical deduction and other processes of reasoning. The professional man is reduced nearly to the level of the mechanic in the shop, whose situation we pity because he has, all day long, to do one or two simple things, or stand by and watch a machine monotonously perform them. He has not the pride in the result of his handiwork that belonged, for example, to the old-fashioned shoemaker who performed all the various processes himself, and the shoe that resulted from his efforts was a better product than the machine-made affair. To have all one's investigations made by laboratory assistants or to sit at one's desk and receive reports from a half dozen specialists through whose hands the patient has passed before coming for review, makes one lazy, intellectually, and robs practice of half its zest. Still another defect in the modern curriculum, a defect common to all classes of educational endeavor, is the multiplicity of subjects touched upon—I will not say taught. This, in the general field of education, is due to the emphasis laid upon vocational training as at present stressed in the public schools. In medical schools, it is due to the same tendency, *viz.*, to provide in the curriculum for a smattering of all the specialties. Pedagogically, I suppose it is believed that variety in respect to the day's intellectual pabulum speaks for greater accomplishment, but this is a fallacy from every point of view. The mind is not trained thereby; neither is the store of knowledge permanently increased.

Those chancing to read this, who are old enough and fortunate enough to have been reared under the régime of the "family doctor," do not need any arguments to prove to them that medicine is an art and not a science. To the discerning among the laity and the intellectually honest among the profession, there must be a tacit agreement to the effect that the major part of the good one receives and the other gives, is not dependent upon the prescriptions written on the nauseous mixtures or sugar-coated pills ingested, but upon the psychic effect produced by the personality of one possessed of a superior knowledge of matters physiological and pathological over another with no such store of knowledge but supreme confidence in the physician's skill. If this is backed, as it usually is in the case of the family doctor, by an intimate knowledge of the patient and his forebears, there is no question but that what bears most effectively upon the conduct of that case is not science, but art. How much of this element, so essential to successful practice, can be derived by a medical student from the full time clinical professor who is paid a good salary in order that he can give his entire time to hospital practice and teaching, it does not take a vivid imagination to visualize.

It is unavoidable that many of the factors which contribute to the success of a practitioner among people in their homes should be lacking entirely in the equipment of the full-time, clinical professor. He, indeed, is a rare man who can keep the human touch, without which the practice of medicine is an unfeeling trade, when devoting all his time to hospital routine and research. There is a decided tendency in medical schools controlling their own hospitals to oust the clinical or bedside teacher from the saddle and put the laboratory trained man in his place. Where the move in this direction is instituted by the medical school, and it practically always will be, there can be but one outcome. The hospital must serve, promarily, the purpose of the medical school, and in the modern school research is the keynote which must be sounded in order to secure the type of teacher that such a school demands. It is, of course, good business to affiliate as closely as may be the clinical, *i.e.*, the bedside, opportunities of a hospital with the medical teaching in schools. It is economical of everything. It is, or should be, mutually beneficial to patient, institution and teaching force, but restrictions should be imposed whereby the

patient's standpoint is not lost sight of by anyone. He, or she, goes to the hospital to be treated, and not merely studied. Diagnosis is important, but the common run of cases are not rarities, and the trying out of physiological tests of doubtful significance under any circumstances, though perhaps justifiable to employ where a diagnosis is in doubt, are not worth while where their confirmation is not essential for the determination of the nature of the trouble or its proper treatment.

The clinical assistant who abstracts blood from your veins, or fluid from about your spinal cord, may impress you with the profundity of his humanitarian instincts, but he is not apt to do so, and what you long for is some one who will sit down beside you and make you *feel* that you are something besides a cytological entity whose metabolism has in some unaccountable way gone wrong. If every one in connection with a hospital feels that way about the patients, and no one has the time to do anything but attend to the procurement and analysis of the various data that modern research has indicated may be desirable in a given set of phenomena, how is the student who is there to be trained, to learn that there is anything to medicine but its science? The Council on Medical Education of the American Medical Association rates very highly, in its estimation of the ranking of medical schools, the facilities for research which the endowment of the school provides. The cost of furnishing full-time clinical teachers, equipping all departments with research facilities, paying the salaries of research scholars and other expenses incidental to such a program, mounts into large figures, besides taking the time of both student and teacher that might be more profitably spent in other ways. It is no part of the province of a medical school to inculcate the spirit of research in the medical student, and the number of men upon any faculty who must be imbued with this spirit need be very small indeed. One New England school, committed to this principle, reports that it cost $3000 per year, per student, to fit them for graduation. Not one man in a hundred has it in him to become a research man, so that it is a pertinent question, why spend such sums to fit men for general practice unless it can be very conclusively shown that training obtained under such a régime is so far superior to the old method that there is no comparison in the results. Research men are, of course, needed in medicine, but the Rockefeller and other Foundations provide all the facilities for their training that the schools of the country need at the present time.

The condition created by the unwarranted tendency to specialization needs a little further elaboration. That the benefit to medicine which has resulted from the special study and investigation given to various fields whose symptomatic inter-relations were not well understood, has been incalculable and has been indicated before in this paper. The harm which is resulting from permitting unqualified men to set themselves up as specialists, is a side of the picture only just now coming conspicuously to the front and in ways that are sometimes not easily appreciated. The remedy for the situation lies largely in the medical schools. The personnel of the medical profession is as frankly human as that of any other group of professional men or laymen. That they have no qualification for specializing in any subject does not particularly disturb them. They see an opportunity to escape the drudgery and responsibilities of general practice and secure the pecuniary emoluments accorded to the specially qualified. They attend a few special clinics, or perchance take one of the many six weeks' intensive course offered by postgraduate schools and they then shamelessly let it be known that they are to do only a restricted type of work thereafter. They are henceforth full-fledged specialists and are entitled to "all the rights and emoluments thereunto pertaining."

They know so little medicine outside their own restricted line, granting they may be qualified in it, that they can go but a short way without calling for help, and thus the services of another, and yet another specialist is invoked. I know that this is not a criticism that can be made of the best trained and most conscientious, but as I have already intimated, there are a good many who are not well trained, *because* they are not conscientious. Those who can afford to get their advice piecemeal, will, of course, do so, just as they indulge themselves in any other extravagance, with a shrug of the shoulders and an it-comes-high-but-we-must-have-it attitude. Those who would rather try to remedy this defect in the organization of the medical profession than attempt to secure what they are after at the prevailing rates and with the accompanying inconvenience, have been casting about for a solution of their problem. The most plausible answer is offered by state medicine, and herein lies one of the gravest dangers that the members of the medical profession, as individuals and as a class, have confronting them in this country today. If it comes, it will be the fault of the profession, but the public will suffer equally with them, for there will no longer be any compelling incentive for the better class of men to enter the profession and not only will the freedom of choice of a physician be taken away from the individual but the quality of service will be inferior. No considerable number of high grade men will be content to sink their individuality and be limited in their activities by state supervision, subject as it would unquestionably be to the uncertainties of party politics.

Group medicine is the answer which the medical profession has had to offer to the recognized disadvantages of the tendencies in practice at the present time, disadvantages arising out of the requirements of practice and the over-development of specialization. In the cities, diagnostic clinics in connection with the large hospitals have been established to provide for those who cannot afford to be passed from one to another for special investigation. In regard to the former, they are tending, in many places to be breeders of the spirit of commercialism which the medical profession has so long stood out against, the prevalence of which is the surest way to bring about the socialization of practice. That there are abuses of the out-patient privilege in public hospitals there is no doubt, but they are infinitely less harmful from every point of view than it would be to have medicine commercialized or socialized. The evils of abuse of clinics by those who can afford to visit a private physician can be measurably held in check and the diagnostic clinic is a less objectionable method of effecting some control over this abuse than are certain other devices. It would be a great pity to dwarf in the members of the medical profession their time honored willingness to render gratuitous service, where the conditions justify it, just as it may well be productive of harmful effects upon the natural, individual, humanitarian impulses if social service and various other uplift organizations become so highly developed that the individual no longer feels a personal interest or responsibility in helping the unfortunate. Humanitarian impulses are fostered by the opportunity to exercise them quite as effectually as muscles are developed by the occasion for their use. From the standpoint of medical education, there is much to be said in favor of the free clinics, as it is through them that the material for teaching medicine is derived and without adequate facilities in this respect, the best grade of instruction cannot be secured. There is also a limit to the extent to which even the patrons of a free clinic will tolerate the ministrations of social service investigators and preserve a feeling of satisfaction in the service rendered. All these activities add to the time spent in the procurement of the aid that the patients seek at the hospital and for many of them the medical service is of most import, if not of sole import. There is danger that an excessive development along these lines may contribute to the general unrest over charitably provided hospital treatment and convert the patrons of them to a program involving state medicine. The bearing of all this upon the thesis under discussion may not be easily comprehended, but these evils, whenever they have been permitted to advance to that stage, are traceable directly to the threshold of the medical schools and most of them would not have arisen had not medical education been permitted to overreach itself in certain directions. The remedy may be sought in large measure in the correction of some of these defects, and if the correction were applied in that way the public and the medical profession would alike be the gainers.

In the curriculum of the medical schools, clinical medicine and clinical surgery bear the same relation to the proper training of a physician that the three R's do to the efficient preparation of a scholar in the secondary schools. This tendency in these schools has been to take away from the time and quality of the teaching in these subjects and allot it to vocational subjects and other pedagogical makeshifts. What has been the result? We turn out pupils with a poor general education. They are indifferent spellers, they know but little grammar or geography, and possess poor equipment with which to proceed to an attack upon subjects requiring close application, *e.g.*, those in the first years of a medical school. In the medical school curriculum, the specialization within the two main subjects and the emphasis placed upon the recognized specialties take away from the fundamentals time that can ill be spared, and turn out poorly fitted specialists and general practitioners who have exchanged their birthright, namely a thorough grounding in medicine and surgery, for a "mess of pottage." How can this be remedied? The reform must start in the secondary and high schools. Their curricula must be formed of those subjects that contribute to the prime object of any broad education, *viz.*, mental discipline. When this is done, time will have been saved the student who purposes to enter a profession. If he can afford a college education and can find a college where his time will be well spent, let him have it, but there is abundant reason to suppose that a good academic course can be combined with the medical course and two degrees earned in two-thirds of the time now usually consumed. Eliminate all attempt to prepare anyone in the regular courses in a medical school for specialization. Discourage anyone from trying to plan a course with any such object in view, but offer a degree which shall be the equivalent of an M.A., to be won by any graduate in medicine after two years of work in a special course, part of which shall be spent in a hospital devoted to the care of the cases in which he chooses to specialize and part of which shall be spent in advanced research and laboratory work in connection with that subject. We shall then have qualified men in the specialties with a good general medical background, and the specialties will not be overcrowded. Furthermore, the public will have a way of knowing who the qualified men are in special lines, and last, but by no means least, the supply of really competent all-

round practitioners will be substantially increased. Scientific study and research must be fostered. To do this, two or three schools might be endowed where the curriculum was arranged with that in view and from which the research scholars and scientific teachers and a few full-time clinical teachers might be trained, enough to meet the requirements of the medical schools and carry on the investigations that medicine and surgery are constantly furnishing the incentive for. Then the rural districts will not, as now, be calling vainly for doctors, and medical students will not be served with indigestible food, which frequently causes malnutrition.

## REPORT ON THE RECENT "SCHICK TEST" CAMPAIGN.

BY JOSEPH GARLAND, M.D., BOSTON.

THE value of, and the method of performing the Schick test and producing active immunization against diphtheria, as well as the magnitude and seriousness of the diphtheria problem, have been so well explained by Dr. Benjamin White in the BOSTON MEDICAL AND SURGICAL JOURNAL of March 10, 1921, that we can do no better at the present time than to quote from this valuable article.

"1. *Theory of the Schick Test.* Diphtheria toxin causes an inflammatory action when injected into susceptible tissues. This reaction does not occur if the toxin is neutralized with its antitoxin before injection, or if an adequate amount of antitoxin is already present in the blood of the individual. Schick found that an antitoxin content of one-thirtieth unit per cubic centimeter of blood is ample, not only to render one immune to infection, but also to neutralize and prevent the inflammatory action of a small amount of toxin injected into the skin. Upon this phenomenon is based the Schick test. A positive reaction means susceptibility, a negative reaction shows immunity. Those who show a positive reaction may and do contract the disease; those who show a negative reaction may become carriers of virulent diphtheria bacilli, but do not develop clinical diphtheria.

"2. *Technique of the Schick Test.* The test is carried out by injecting intracutaneously one-fiftieth of a minimum lethal dose (M. L. D.) for a guinea pig weighing 250 grams. The State Department of Public Health supplies free an outfit, which contains sufficient titrated diphtheria toxin with the proper amount of sterile salt solution for fifty tests. The toxin is contained in a capillary tube, and when it is desired to perform the test, the contents of the tube are expelled into the bottle containing the salt solution. One-tenth of a cubic centimeter of this mixture represents the dose to be injected into the skin and contains one-fiftieth M. L. D. of toxin. This diluted toxin must be used within a few hours after mixing, because it rapidly loses its potency when exposed to light and room temperature. The skin of the flexor surface of the arm, preferably above the elbow, is cleansed with alcohol, acetone or ether, and one-tenth cubic centimeter of the diluted toxin is injected *into* the epidermal layers of the skin. This is best accomplished by means of a short but sharp-pointed No. 26 or 27 gauge hypodermic needle. The 1 c.c. "Record," or other tuberculin syringe, is well adapted for the purpose. If the point of the needle has been properly inserted, with the lumen uppermost and visible through the skin, the injection should produce a small, slightly raised, white area, or wheal, which should move with the skin and disappear in about one-half hour. The injection should never be made *under* the skin. The technic of the test is easily acquired. The injection causes little or no pain, it is never followed by constitutional symptoms, and the site of injection requires no subsequent care.

"3. *The Positive Reaction.* A positive reaction begins to appear in 24 to 36 hours and is characterized by a circumscribed area of redness and slight infiltration which measures one to two centimeters in diameter. It develops gradually, reaches its greatest intensity on or about the fourth day, then fades very slowly, leaving a scaly, brownish pigmented spot. The positive result of the test represents the true irritant action of diphtheria toxin, and signifies that the individual possesses little or no antitoxin in the blood, and therefore may contract the disease.

"4. *A Negative Reaction.* The native diphtheria antitoxin in the tissues of an immune person neutralizes the injected diphtheria toxin, and on the day following the injection no signs are present, except the slight and fleeting mark incident to the insertion of the needle.

"5. *The Pseudo Reaction.* In some individuals, particularly in adults, a reaction develops which may be confused with a positive reaction. Owing to the hypersensitiveness of some persons to the protein of the diphtheria bacillus present in the toxin, a local reaction may appear at the point of injection. The pseudoreaction is distinguished from the positive reaction by its more rapid development. 'It appears usually within twelve to eighteen hours, and fades in about three to four days, leaving only an irregular area of brownish pigmentation and generally shows no scaling. In appearance the moderate pseudoreactions, at the end of the twenty-four hours, resemble very much the fully developed positive reactions, while the marked pseudoreactions show a considerable amount of infiltration with a central darker reddish area, surrounded by a fainter areola, which shades off into the surrounding skin' (Zingher). In order to exclude

pseudoreactions, repeated observations over a period of five or more days should be made and the appearance carefully noted. 'By this time the pseudoreaction will have faded and can be recognized by a blotchy area of pigmentation, while the true positive reaction will be at its height. The positive reaction will show at this time a definite circumscribed area of scaling redness, which gradually develops a brownish pigmentation. Those tests, however, which show only an area of bluish discoloration, or faded irregular areas of brownish pigmentation which do not scale, are generally the remains of pseudoreactions' (Zingher).

"6. *The Combined Reaction.* If a combined reaction is present, the redness and infiltration at the site of the Schick test will be more marked at the end of twenty-four hours than in the control test. At seventy-two hours, the positive reaction will be quite distinct, while the control test will show only a blotchy area of pigmentation representing the pseudoreaction elements of the test. If the test is positive, the reaction at the end of twenty-four and seventy-two hours will be positive only at the site of the Schick test. The negative and the pseudoreactions indicate immunity, the positive and the combined reactions, susceptibility of diphtheria' (Zingher). The appearance of pseudoreactions presents no especial difficulties. A short experience in reading the reactions will suffice to enable one to make a correct interpretation of the results."

The control test consists in a similar dilution of toxin which has been heated to 75° C. for five minutes, thus destroying the soluble toxin, but leaving the protein of the diphtheria bacillus, which causes the pseudoreactions, unaffected.

*Active Immunization.* Immunizing doses of antitoxin take immediate effect, but are dependable for two to four weeks only. Toxin-antitoxin, on the other hand, may require eight to twelve weeks, or even more, to develop an immunity, but the immunity lasts for at least four and a half years and probably in most cases, for life. Due to the late development of this immunity, the Schick test should be performed after six months. At this time, over 90% will react negatively to the Schick test. The remainder should be reimmunized. The development of immunity may also be retarded by previous administration of antitoxin. All immunization should be controlled by the Schick test.

All persons over six years of age should be Schicked and immunized if positive, if the ideal results in the prevention of diphtheria are to be obtained. All children below six years and over six months should be immunized regardless of the Schick test. Immunization of infants under six months is unsatisfactory, and in this age group no response is generally shown to the Schick test. Adults showing a combined reaction should not be immunized, as the chance of a severe reaction is too great.

Immunization consists in three doses of toxin-antitoxin mixture, of 1 c.c. each, undiluted, subcutaneously, at intervals of 7 to 10 days.

The purpose of the present report is to bring before the readers of the JOURNAL the results of the campaign that has been carried on by the Committee on Public Health of the Massachusetts Medical Society, in the interests of diphtheria prevention and control. The Committee, during the past winter, decided that it would be of value in furthering the state-wide control of diphtheria to carry on a series of demonstrations of the Schick test, with an explanation of its value and that of the subsequent administration of toxin-antitoxin to persons in whom the Schick test showed susceptibility. The writer of this article was asked to undertake this campaign.

It was decided that general hospitals in the various centres of the state, where medical men could most conveniently meet, would be best available for carrying on demonstrations of this nature. Sixteen hospitals, in sixteen of the larger cities, were approached by letter, and appointments for demonstrations were made with the majority of them. Letters advising of the demonstrations were also sent to the District Health Officers, Presidents of the local District Medical Societies, Agents of Boards of Health, and others who it was thought might be especially interested. It was planned to revisit each locality one and four days after performing the tests, to demonstrate the immediate and final reactions. Both of these return visits were made in all but two instances.

Following is a list of hospitals visited, with the dates of demonstrations: Massachusetts General Hospital, Boston, April 15; Beverly Hospital, April 28; Addison Gilbert Hospital, Gloucester, April 29; Brockton Hospital, May 9; Morton Hospital, Taunton, May 9; Union Hospital, Fall River, May 9; Springfield Hospital, May 16; Holyoke City Hospital, May 16; House of Mercy, Pittsfield, May 18; North Adams Hospital, May 18; Worcester City Hospital, May 24; Burbank Hospital, Fitchburg, May 24; Lowell Corporation Hospital, May 26; Lawrence General Hospital, May 26.

Cordial receptions were encountered in all places, and the demonstrations were performed before interested groups of physicians and nurses. Tests in most places were performed on nurses, hospital employees, and physicians, the one exception being in Lowell, where a group of children from a child-caring institution were tested.

In the carrying out of this campaign, great thanks are due to Dr. Bernard W. Carey, Director of the Division of Communicable Diseases of the State Department of Public Health; the various State District Health Officers, and especially Dr. Benjamin White, Di-

rector of the Division of Biologic Laboratories, who freely furnished material, and gave much valuable assistance in planning the campaign and interpreting the results of the tests.

The Schick test and active immunization against diphtheria, as is now well known, are being employed on a large scale in the schools of New York, where letters explaining its value are sent routinely to the parents of all school children. In this state, voluntary school clinics are already being held in several cities, and the test is being used routinely in many of the state and private institutions. The result which we hope can be eventually attained is that all children in the state, through the education of the parents, may have the benefit of the test and the immunization.

The following tabulation of the results of this campaign may be of some interest, as showing the varying percentages of positive, negative, and pseudoreactions in small, selected groups in various parts of the community.

SCHICK REPORTS, APRIL-MAY, 1921.

| | Positive | | Negative | | Combined | | Pseudo | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Mass. General | 16 | 39% | 25 | 60% | 2 | 5% | 6 | 14% | 41 |
| Gloucester | 13 | 72% | 5 | 27% | 1 | 5% | 0 | | 18 |
| Beverly | 23 | 65% | 12 | 34% | 0 | | 5 | 13% | 35 |
| Fall River | 11 | 44% | 14 | 56% | 5 | 20% | 10 | 40% | 25 |
| Brockton | 26 | 66% | 13 | 33% | 0 | | 7 | 17% | 39 |
| Taunton | 4 | 30% | 9 | 69% | 2 | 15% | 1 | 7% | 13 |
| Holyoke | 11 | 32% | 23 | 67% | 3 | 8% | 16 | 47% | 34 |
| Springfield | 23 | 56% | 18 | 43% | 1 | 2% | 11 | 26% | 41 |
| Pittsfield | 15 | 62% | 9 | 37% | 0 | | 6 | 25% | 24 |
| North Adams | 13 | 65% | 7 | 35% | 4 | 20% | 1 | 5% | 20 |
| Worcester | 15 | 68% | 7 | 31% | 3 | 13% | 5 | 22% | 22 |
| Fitchburg | 11 | 68% | 5 | 31% | 3 | 18% | 1 | 6% | 16 |
| Lowell* | 6 | 30% | 24 | 70% | 2 | 6% | 11 | 36% | 30 |
| Lawrence | 14 | 63% | 8 | 36% | 1 | 4% | 4 | 18% | 22 |
| TOTAL | 201 | 52.8% | 179 | 47.2% | 27 | 7.1% | 84 | 22.1% | 380 |

* All cases tested in Lowell were children under 15 years of age. The majority of all other cases were nurses, with a few physicians and hospital employees. The average age of most of these cases is about 25.

In all, 380 tests were finally interpreted; of these, 52.8% were found to be susceptible to diphtheria, a much higher percentage than Park has published for the adult group. His recently published statistics are as follows:

SUSCEPTIBILITY OF VARIOUS AGES TO DIPHTHERIA.

| AGE | SUSCEPTIBLE |
|---|---|
| Under 3 months | 15% |
| 3 to 6 months | 30% |
| 6 months to 1 year | 60% |
| 1 to 2 years | 70% |
| 2 to 3 years | 60% |
| 3 to 5 years | 40% |
| 5 to 10 years | 30% |
| 10 to 20 years | 20% |
| Over 20 years | 12% |

In the Parker Hill Reconstruction Hospital, at Boston, the following results were obtained:

| | POSITIVE | NEGATIVE | PSEUDO |
|---|---|---|---|
| Employees, 396 | 13.9% | 86.1% | 2.5% |
| Patients, 396 | 13.6% | 86.4% | 3.6% |

In this connection, however, it is interesting to note that Zingher, in a school for boys up to 18 years of age, in the country, found 85% susceptible, and in a girls' school, in the country, 75% susceptible. He finds a lower percentage of positives among the foreign-born population, and, as a rule, a lower percentage among the so-called lower classes than among the upper. These differences are no doubt due to the relatively greater exposure experienced among the urban population and among those classes of society who have led less sheltered lives and have been permitted, especially as children, to acquire contacts which, fortunately or otherwise, have not been the lot of others. In this group would come Park's series in New York, and the patients and employees of the Parker Hill Hospital. Among those not having had this contact, and consequently not having had the opportunity to acquire a direct immunity to the disease by exposure during childhood, when most natural immunities are probably acquired, would come the individuals in Zingher's two private schools, and our own groups of nurses. For comparison, we can point to the children tested in Lowell, who, although considerably younger, show a greater percentage of immunes than the nurses.

## SUMMARY.

Three hundred and eighty Schick tests have been performed and demonstrated before groups of physicians and nurses, in fourteen of the larger cities of the state. These tests have shown that there exists, among the more educated classes, at least, a greater susceptibility to diphtheria than has been previously supposed. In order to effectively control diphtheria, all persons over six months of age in the community should either be immunized (if under six years of age), or should have their susceptibility to diphtheria determined by the Schick test, and if proven to be susceptible, should be immunized.

# MORTALITY IN PLACENTA PRAEVIA FOR THE LAST TWENTY-FIVE YEARS AT THE BOSTON LYING-IN HOSPITAL.

By Foster S. Kellogg, M.D., Boston.

It is a pleasure to observe definite improvement in results in any obstetrical problem with which we deal. It is interesting to attempt to determine the causes of such an improvement, and to see if further application of these causes will not result in further improvement. My purpose in discussing the mortality of placenta praevia at the Boston Lying-in Hospital for the last twenty-five years, is to show the fact that an improvement has taken place in the last five years, and to suggest the causes for this.

The causes, as I shall outline them to you, are not definitely conclusive, perhaps because of a relatively small amount of material, but it is my hope that this summary of the last twenty-five years work in placenta praevia may serve as a basis of study and be of value to the men who, I hope, are about to take up "bleeding cases" as a special subject at the hospital.

In J. Whitridge Williams' second edition of *Obstetrics*, published in 1908, there appears an article under the title, Placenta Praevia, "Advice Regarding the Treatment of Placenta Praevia," which at this date, thirteen years later, seems to me to be as conclusive as when written.

Based, apparently, upon a good deal of experience, and the study of statistics in many clinics, he definitely warns against the employment of rapid manual or instrumental dilatation, and lays down the dictum that either Braxton Hicks' bipolar version, or dilatation and control of the hemorrhage by use of bags, should be used in practically all cases of placenta praevia.

He further points out that the fetal mortality is very high by all methods, and probably incapable of improvement by any.

He showed maternal mortality statistics ranging from 1% to 4.85%. One per cent. is in 93 cases, treated by three operators by Braxton Hicks' bipolar version. The 4.85% is in 178 cases, treated by eleven different obstetricians by Braxton Hicks' bipolar version.

These conclusions, published in the text book in 1908, and so probably appearing in the literature considerably earlier than this, seem not to have been heeded by men in this community, although the maternal mortality at the Lying-in Hospital, during the years 1905 to 1910, was 24%. As late as 1914, with the Lying-In mortality still running 20%, a text-book published hereabouts states, after considering the question of bags, gauze and packs, and Braxton Hicks' version, that in the majority of placenta praevias, the author "believes manual dilatation will be the method elected."

It is not my purpose to go into complete, or careful, analysis of each of the 218 cases of placenta praevia studied in the records from 1895 to 1919, inclusive, but to show on this chart in a general way the mortality by five-year periods during this time, thus receiving a sufficient number of cases for each period, and to attempt to show on the same chart, various factors entering into the changes in this mortality. (Particularly have I studied the two periods from 1910 to 1915, and from 1915 to 1919, inclusive.) There were 218 cases in the twenty-five years with thirty-eight maternal deaths. These 218 cases included complete, partial, and marginal praevias. This maternal death rate of 13½% in all classes of placenta praevia, is practically the same as Cragin reports (in his text-book published in the year 1916), in complete placenta praevia with the use of bags, so that it is fair to say that this result is not good. From 1895 to 1915, that is to say, the first twenty of our 25-year period, the maternal mortality at the Boston Lying-in Hospital, in all classes of praevias was nearly 20%.

The chart shows that the maternal mortality by five-year periods, was as follows: From 1895 to 1900, 17%; from 1900 to 1905, 15%; from 1905 to 1910, 24%; from 1910 to 1915, 20%; from 1915 to 1919, 6%.

The number of cases in each five-year period is shown in the next column as: 18, 26, 42, 66, 66.

The first bag was used in placenta praevia at the Lying-in Hospital in 1908, following which there was a hiatus until 1910.

The next column shows the percentage of cases in which Braxton Hicks' bipolar version and bags were used in these five-year periods, These percentages run: 0, 0, 2, 13, 57.

Maternal mortality, corresponding years: 17%, 15%, 24%, 20%, 6%.

The next column shows the number of cases that died in each five-year period, and runs: 3, 4, 14, 13, 4.

It will thus be seen that the same number of deaths occurred in 66 cases during the last five years as occurred in 26 cases during the five years between 1900 and 1905, which five years gives the best previous maternal mortality.

The next column shows the percentage that died that had for a method of delivery manual dilatation and extraction during these five-year periods, and this runs: 100%, 100%, 100%, 80%, (one died undelivered, and one died by Caesarean)—100%.

The remainder of the chart is taken up with the comparative study of the last ten years, by five-year periods, comprising two groups of equal number of cases, 66; two groups not very dissimilar in numbers as regards the sort of praevias handled, in that from 1910 to 1915

CHART I. PLACENTA PRAEVIA.
B. L. I. 1895-1919—25 years
218 cases; 38 deaths
Maternal Mortality, 13.5%

1895–1915
19% Maternal Mortality

1915–1919
6% Maternal Mortality

| | 1895-1900 | 1900-1905 | 1905-1910 | 1910-1915 | 1915-1920 |
|---|---|---|---|---|---|
| Number cases | 18 | 26 | 42 | 66 | 66 |
| Maternal mortality | 17% | 15% | 24% | 20% | 6% |
| Percentage cases, bags or Braxton Hicks | 0 | 0 | 2% | 13% | 57% |
| Percentage that died having manual dilation and Extr. | 100% | 100% | 100% | 80% | 100% |
| Number maternal deaths | 3 | 4 | 14 | 13 | 4 |
| Maternal mortality, complete praevias | | | | 36% | 18% |
| Maternal mortality, incomplete praevias | | | | 9% | 0% |
| Fetal mortality | | | | 44% | 48% |

there were 25 completes and 41 incompletes; from 1915 to 1920, there were 22 completes and 44 incompletes. Reducing these figures to percentages, so that the difference in number of cases complete and incomplete has no bearing, we find that the maternal mortality in the five years from 1910 to 1915 (during which time Braxton Hicks' version or bags were used in only 13% of cases), to be 36%, whereas in the last five years in which Braxton Hicks' version or bags was the method of delivery in 57% of the cases, the mortality in complete placenta praevia is 18%, within four as good as that obtained in a shorter series by Cragin with the continuous use of bags. We find, as well, that the mortality in this last five-year period in incomplete praevias has been reduced from 9%, when bags and Braxton Hicks' version were used in but 13% of the cases, to 0 in the five-year period during which bags and Braxton Hicks' version were used in 57% of cases.

One is naturally interested in the fetal mortality comparison during these two periods, and this is shown in the next column to be 44% in the early five years, and 48% in the later five years. The difference is practically negligible in statistics, and certainly negligible in the face of reduced maternal mortality, and backs up the theory propounded by Williams that the fetal mortality must always be high and fairly consistent. This fetal mortality seems to be somewhat better on the one hand, and somewhat worse on the other, than as quoted in statistics from other clinics.

In these ten years, placenta praevia at the Boston Lying-in Hospital has been handled by 15 different members of the staff, and the house officers under their direction.

Analyzing the cases individually, we find that they give the following results:

| | | | | |
|---|---|---|---|---|
| 1. | 33% | mortality | in 3 | cases |
| 2. | 28% | " | " 7 | " |
| 3. | 27% | " | " 11 | " |
| 4. | 23% | " | " 13 | " |
| 5. | 22% | " | " 14 | " |
| 6. | 20% | " | " 10 | " |
| 7. | 20% | " | " 5 | " |
| 8. | 17% | " | " 6 | " |
| 9. | 4% | " | " 25 | cases* |
| 10. | 0% | " | " 11 | " |
| 11. | 0% | " | " 6 | " |
| 12. | 0% | " | " 6 | " |
| 13. | 0% | " | " 5 | " |
| 14. | 0% | " | " 2 | " |
| 15. | 0% | " | " 1 | " |

* This being the house officer's.

Taking into account only the men who had done five cases or over, we find these rather interesting figures. That of the five men having a 0 mortality in five cases or over, four invariably have used bags or Braxton Hicks' version. One used manual dilatation for many years, but now frequently, or always, uses Braxton Hicks' version or bags. Save for this individual, it is equally clear that the men whose mortality has been highest, are the men who have resorted more or less consistently to manual dilatation and extraction.

The given causes of death in the 17 cases that died in the last ten years are as follows: Hemorrhage and shock, 11; one a question of embolus; ruptured uterus, 3; sepsis, 1; question of anesthesia death, but died during manual dilatation, 1; died undelivered, 1.

Of these deaths, 13 were complete, and four incomplete. The method of delivery in the completes was 12 manual dilatation and extraction, and one Caesarean. Of four incomplete cases that died, three died when manual dilatation and extraction was the choice of operation, and one died undelivered.

CHART II. B. L. I. SERIES TO DATE
Bags and Bipolar Version.

| | |
|---|---|
| Incomplete | 43 |
| Complete | 12 |
| Placenta praevias without maternal mortality | 55 |
| Fetal mortality (cf. Chart I) | 48% |

I have said in the beginning that in tracing the causes for this improvement in our statistics for the past five years, I could not prove my opinions for lack of material, and that my conclusions were simply suggestive. The series that has been done with bags and Braxton Hicks' version is as yet too small, but there is no maternal mortality in 36 cases in which bags have been used, and 10 cases in which Braxton Hicks' version was used. The fetal mortality in the 46 is 50%. Of these, eight were complete, and 38 incomplete. By carrying this series of placenta praevias delivered by means of bags and Braxton Hicks' version to date, we have a

series of: 12 complete; 43 incomplete; — 55 cases without maternal mortality, with a fetal mortality of 48%. This fetal mortality is practically the same as with less conservative methods of delivery.

Various other factors have entered into these improvement statistics, two of which I will mention. One is that for the past five years there has been no hesitancy upon the part of the staff in going straight to a questionable placenta praevia case and getting it cleaned up promptly, once the diagnosis is established.

Previous to this time, there had been a tendency on the part of some of the staff to delay until bleeding had become alarming, perhaps, and the patient had lost too much blood. And yet I may add that as yet we have not gone far enough in the insistence on the establishment of a diagnosis in bleeding cases by examination under gas. It is possible to overlook the placenta unless an anesthetic is used, and the cervix penetrated. This has been done by very good men, and the patient sent out with the possibility of her having severe hemorrhage at home. We should reiterate the dictum that patients having antepartum bleeding should either be kept for observation in the hospital, or if this is not possible, examined forthwith under an anesthetic, and the cervix penetrated, even at the risk of starting the patient in premature labor.

Another factor which has contributed very considerably to the improvement in our statistics is that certain outside physicians, who feed cases to the hospital, have at length arrived at the correct conclusion that a single bleeding spell calls for hospital care, and not for observation at home. So we are getting our cases from them earlier than we have before. Also our pregnancy clinic and prenatal nursing has helped in the same way.

Nothing, probably, can prevent death of those cases of placenta praevia coming into the hospital bled out and moribund, though one of the most interesting questions to me is whether or not some of them can be saved by tightly packing the cervix and vagina, putting on a waist tourniquet over the top of the uterus, transfusing them, getting them warm from their trip in, and combating the shock for several hours previous to delivery. I should like to see this tried out on a series of these cases.

I have purposely said nothing about the choice between Braxton Hicks' bipolar version and bags, but have considered both together as being conservative methods of treatment. The series of each is too short for comparison, and a differentiation of their merits is not the purpose of this paper. Theoretically, perhaps, Braxton Hicks' version is indicated in nonviable children, and bags in viable children, but my experience with the bag leads me to feel that one must not be too optimistic about saving the baby with the bag, and I think the results on viable babies, so far, have been as good with Braxton Hicks' version as with bags, in our series, though I am in no position to state this surely. The bag does sometimes peel off enough of the placenta to asphyxiate the child, though it controls the bleeding. (But the baby's life is of relatively little importance in placenta praevia.) Certainly the Braxton Hicks' version is the method of choice in rural communities, or where the facilities for using the bag are not at hand.

I believe that pituitrin has a place in the treatment of placenta praevia of marginal, and possibly lateral varieties, in which the patient is first seen bleeding, with a floating head, and fully, or nearly fully, dilated, and inadequate pains. Rupturing the membranes, the head is not pushed down onto the placenta for lack of pains, and one is faced with 25 or 30 minutes bleeding while preparing for operation. I have used a small dose of pituitrin in two instances of this sort, causing enough pain to force the head to control the bleeding, and the cases have then delivered themselves normally without further bleeding.

I have also left for discussion the consideration of whether the bag should be used intra or extra ovularly, and also the question of the size of the bag. Personally, I have always used the largest bag corresponding to the month of pregnancy not quite full, and have used it extra ovularly.

It is of the utmost importance, if one is to use a Braxton Hicks' version, to do a Braxton Hicks' version alone, and not a Braxton Hicks' version and forcible immediate extraction. The records show that this has frequently been done, and there is little choice between that and manual dilatation and extraction. The former is worse, for one can control the hand pressure better than the head pressure, and I fancy the ruptured uterus, when manual dilatation and extraction is chosen for delivery, is more often the result of pulling the head through the not quite dilated cervix than the result of the hand dilatation. This is statistically supported by two considerations.

1. The bigger the accoucher's fist, the more nearly he gets full dilatation, and the better his results in our figures.

2. It is very noticeable, both in this aspect and as regards shock, that cases not moribund die when they only need a little finishing off of the dilatation, about as frequently as when they have to be dilated up from nearly nothing, and my impression is that ruptured uterus is about as common in the one as in the other. Also I believe many deaths attributed to hemorrhage and shock are the result of ruptured uterus.

### CONCLUSIONS.

I believe we have improved our personal statistics in placenta praevia by a more frequent

resort to conservative methods of delivery, specifically Braxton Hicks' version and the uses of the bag, and that while other factors have contributed to our better results, this is the most important one, and that one or the other of these methods should be used, to the exclusion of manual dilatation and extraction. I feel that these conservative methods of treatment are still insufficiently regarded by physicians in the community.

I feel that we can go still further than we have gone in this regard, and that our percentage for the next five years, instead of being 57% with the use of bags and Braxton Hicks' version, should be 70% or 75%, since probably 20% of the hospital cases get to full dilatation by the time they are seen, and I believe that with this change there will come still further improvement in our results. Our series of 12 complete and 43 incomplete,—55 cases by bag and Braxton Hicks' version, without maternal mortality, I think warrants this feeling.

Six per cent. mortality is still too high, still higher than the old German figures with bipolar version, but compared with 20% in the previous years, we may congratulate ourselves on improvement.

## THE OPERATION FOR PROLAPSUS UTERI.

BY WELLER VAN HOOK, A.B., M.D., CHICAGO.

BY the expression *prolapsus uteri* we practically understand the descensus of the womb from the pelvis through the *hiatus genitalis*. It is commonly observed clinically as the presentation of the uterus outside the body between the thighs, the vagina having been inverted so that the womb lies within it and outside the vulva.

Prolapsus uteri is always associated with profound and far-reaching anatomical changes in the structures of the pelvis and the abdomen. Usually as the result of injuries occurring in childbirth the supporting and retaining structures that maintain the uterus gradually stretch until the full development of procidentia has been reached.

The clinical surgeon is confronted with the practical problem: How can I permanently cure this hernia and the associated disabilities that have resulted from these long-standing conditions? Some structures have been ruptured or torn, some have undergone atrophy or degenerative modifications; hypertrophy has modified others; elongation has taken place for some structures; contracture has affected others; the form and capacity of some hollow organs have been altered.

The answer to our practical inquiry cannot be made without an accurate knowledge of the morbid anatomy and physiology. And this necessity has forced surgeons to the most profound and critical review and investigation of the normal anatomy and physiology of the parts. Holl has given us the most intimate account of the pelvic tissues; but Waldeyer, Poirier, Testut, and recently Wertheim, Tandler and Liepman have done much to clarify our knowledge of this intricate subject. The writer would urge his colleagues thoroughly to study these writers in preparation for true conceptions of what is required and what can be accomplished for the permanent cure of prolapsus uteri.

It would require the space of a volume to discuss this topic in detail. I must plunge *in medias res*, state my thesis and defend it quickly even if without fullest detail.

My fundamental generalization is this: since anatomical changes are so numerous and so extensive, and since recurrences after ordinary operative procedures are so common, *we should, in all cases suitable for operation, apply at once and simultaneously all possible measures that may be properly utilized in supporting the pelvic structures and in overcoming the tendency to hernial recurrence.*

The uterus is not a supporting structure for the pelvic tissues, although it may serve as a passive link in several of the chains of support. Hence if the uterus is excised, with restoration of the continuity of the chains or lines of support of which it formed a part, then the pelvic structures will be sustained quite as well as if the uterus were present. Wertheim's brilliant operation of anteverting the uterus into a new-formed space between the bladder and the anterior vaginal wall is chiefly valuable, not because the uterus can act as a plug, but because it acts as a bar or lever with which the surgeon favorably changes the direction in which a number of forces act. The device seems to me to be clumsy and illogical, and particularly unfortunate in this that the organ is put in an entirely anomalous position where it must obviously interfere to some extent, at least, with the action of the bladder, and in that other and simpler, more rational procedures act more effectively.

But Wertheim's procedure advantageously involves the tightening of the round ligaments, the broad and the utero-sacral ligaments, and the fact that these supporting structures are brought to perform their functions again constitutes the most important curative factor in his operation. Since the great broad ligaments are brought from a point high up in the pelvis, to lie under the bladder and, therefore, are made to support the vesical fascia, why not excise the useless viscus and bring together the broad ligaments directly, thus causing them to join or heal in with the vesical fascia and to support the bladder and the anterior vaginal wall?

Long after I had conceived this idea I found

in the literature statements that one of the Mayos had had the same notion, that of removing the uterus and bringing together the broad ligaments under the bladder, and had put this plan into practice. I had worked out the idea independently. Combining it with other principles, I have arrived at a procedure that seems to offer much promise. This procedure involves the restoration of all possible supports of the pelvic outlet at once and with set purpose.

The structures that have functions in the pelvis and that also play a part in the rôle of support are chiefly the following:

1. The perineum, including the immediately related structures, the levator ani and the pelvic fascia.
2. The vesical fascia, the importance of which is justly stressed by Halban.
3. The uterine round ligaments.
4. The broad ligaments.
5. The utero-sacral ligaments.
6. The fascia pelvica.

The method of restoration of these structures to such relations that they may take part in the associative functions of all the pelvic organs, may perhaps be best described by briefly detailing the report of a case in which the operation I recommend was performed.

CASE.—Mrs. T., aged sixty years, referred by Dr. F. C. Warne, gave birth to a child more than thirty years ago. She gradually developed a procidentia which has been complete for a dozen years. Having been employed to do light housework, she has steadily maintained that activity, refusing until the present time to consult a surgeon.

The general condition is good; the patient is a fairly well preserved woman except for the fact that, on standing, the uterus escapes from its normal situs in the pelvis and hangs outside, between the thighs. The suffering from this condition is great.

Under ether anesthesia the anterior vaginal wall was split from a point just posterior to the meatus urinarius backward to the servix uteri and the bladder was exposed by dissecting from it the vaginal wall together with the fascia vesicae.

Next the uterus, after its isolation anteriorly and posteriorly, was removed and the various structures of the vicinity identified. The broad ligaments, isolated and held by long and stout artery forceps, were next brought together and *made to overlap one another beneath the bladder*, which was thus held pushed well up out of the way. The broad ligaments were closely and strongly sutured together in overlapping fashion. As the next act, the pelvic fascia and the vaginal wall were brought together with stitches that at once united the broad ligaments to the base of the bladder and to the anterior vaginal wall. The base of the bladder was thus held up in the pelvis taut and close.

Simultaneously the round ligaments were fastened into the upper anterior vaginal wall wound. The utero-sacral ligaments, which had been carefully cut away from the womb as it was excised, were exactly sutured in the elevated upper vaginal opening left after the hysterectomy.

At this stage in the operation it was evident that the vagina was replaced and fully elongated, that the cystocele was abolished, and that the posterior vaginal structures remained to be restored. So, the rectocele having been exposed by splitting the posterior vaginal wall, the levator and the fascial structures were reunited, while the perineum and the posterior vaginal were in other respects restored.

Suitable temporary dressings were applied about the pelvic outlet and the abdomen was opened. In Trendelenburg's position, the pelvis having been emptied by retraction of the intestines, the broad ligaments were observed, hypertrophied (as is so well illustrated by Halban), and running from the lateral abdominal wall to the base of the bladder where, as stated above, they had been attached to the vesical fascia. The direction of the broad ligaments had thus been slightly changed. The utero-sacral ligaments were similarly to be observed running to the same point in the pelvis.

Carrying out the original plan to use all reasonable methods of sustaining the uterus, the round ligaments were shortened still further, as could easily be done from within the abdomen, and the *upper* margins of the broad ligaments were brought together more closely with chromicised catgut sutures.

But *the most important part of the intra-abdominal work was completed in the lifting up and the reefing of the pelvic fascia over each internal iliac fossa* by the use of several reefing sutures at the pelvic brim so that the peritoneal sac was shortened in its longitudinal axis. This exercised a potent influence upon the general glissade of the pelvic tissues toward the pelvic outlet. This was accomplished by picking up with the forceps the peritoneum together with the subjacent tissues as they were found hanging lax at the pelvic brim at each side of the pelvis and then, having made a transverse fold of them by using several forceps, suturing together the sides of the fold with resistant catgut.

There were no special difficulties in this operation, nor does it seem probable that any will be encountered in future similar cases devoid of active morbid processes. The patient made a smooth and rapid recovery, being kept in bed for ten days. But for two months she was ordered to abstain from brusque or strenuous exertion, remaining in the reclining position a good part of the day, yet rising to take moderate exercise about the house. Of course, these restrictions were gradually relaxed until the patient became fully active. A subsequent

pelvic examination showed that the vaginal vault is in a well elevated position, that there is no sacculation of the bladder or rectum and that the other structures are in equally satisfactory condition.

When we compare this plan and technique with that of Wertheim I think we must recognize its superiority, since it involves the application of no contradiction of anatomical principles such as is involved in the making of a pocket for the useless uterus which is to be placed in an abnormal position. It contemplates no intervention that is bizarre, but demands the recognition and utilization of all the supporting structures of the pelvic outlet as far as practicable.

The cases in which one would resort to such a procedure are, of course, those in which the age of the patient, or some other condition, justifies the removal of the uterus. But it is usually only in patients of somewhat advanced age that one meets with true prolapsus demanding radical operation, so that that organ can almost always be removed with perfect freedom.

BOOKS RECOMMENDED FOR STUDY.

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## PROCIDENTIA RECTI.

BY T. CHITTENDEN HILL, M.D., BOSTON.

### DIAGNOSIS.

USUALLY a complete prolapse of the rectum will be found to have been of long standing, having been at first easily reducible through voluntary action of the levator ani, but becoming, in the course of time, reducible only manually. Inspection reveals a mass protruding from the anus, of inverted cone shape, hardly ever exceeding five or six inches in length, its surface covered with mucous membrane, which varies in appearance from normal to an inflamed, thickened, or ulcerated mucosa. Upon the apex of the protrusion there is an opening, which is central when the prolapse does not exceed three or four inches; when it exceeds this amount, the orifice is directed backward by the traction of the meso-rectum. According to Moschcowitz, the anterior half frequently gives a tympanitic note on percussion because it is usually filled by small intestine; the posterior half is dull on percussion. These symptoms are not present in prolapse of the anus.

In those cases which start as a mucous membrane prolapse (as I believe most do), there is a great redundancy of the mucous membrane at the anal margin. Frequently it is possible to take up with the fingers large folds of it with the submucous structures, and the muscular wall of the rectum can be felt beneath. This exaggerated redundancy is of much importance when we come to a consideration of the operative treatment, for I believe that in those instances in which this feature is very marked, plastic operations aimed at narrowing the anus are all that are indicated and in the great majority of cases will result in a permanent cure. In some patients this marked redundancy is not present. Under these circumstances this type of operation could not be undertaken with the same hope of radical cure.

*Anatomy.*

Because of the very numerous and widely diverging theories as to the etiology of complete rectal prolapse, an understanding of the different points of the anatomy upon which these various views are based is essential.

The rectum is normally a fixed organ. There is, however, at the larger Houston valve and also at the recto-sigmoidal juncture some mobility, although relatively this is very slight. The ampulla which extends from the recto-sigmoidal juncture to the level of the levator ani, is a rather large cavity (four or five inches in circumference). The surrounding musculature of the lower two inches, known as the anal canal, is rather dense, being composed of the external and internal sphincters and the levator ani muscles. This portion, in a natural state, is constricted to a very small diameter, though capable of voluntary and involuntary dilatation, which permits the passage of large fecal masses at times.

The natural anatomic supports which in health prevent a prolapse, may be briefly summarized as follows: Beginning from below, the external sphincter and levator ani tightly close the anal orifice. The levator ani, otherwise known as the pelvic diaphragm, has a very important function in supporting the rectum, as well as the other pelvic organs. In any case of prolapse it naturally follows that these muscles must be greatly deficient and relaxed before a descent of the organ can take place. Whether their relaxation is cause or effect is rather difficult to state positively, but the fact that the majority of cases of complete prolapse begin as an eversion of the mucous membrane suggests some loss of tone of these muscles as being the exciting cause.

Above the levator ani there are supporting attachments to the lateral walls analogous to the broad ligaments which support the uterus. These play an important rôle, supporting, as they do, the middle portion of the organ with its blood supply. The lateral ligaments are attached at the level of the third and fourth sacral vertebrae and are

below the peritoneum. Posteriorly, the rectum is rather loosely attached to the hollow of the sacrum by loose connective tissue, termed by Smith, "recto-sacral aponeurosis." It forms one of the layers of the viscero-pelvic fascia. This has the effect of holding the rectum in place but is easily broken down by the finger when separating the posterior rectal wall from the sacrum, as in the operation for excision. The lateral ligaments are its chief support and have much to do with retaining this organ in its natural position, but the peritoneum must also be taken into consideration, because freeing the lower portion by division of the levator ani muscle, the rectum cannot be drawn down to any great extent until these ligaments and the peritoneum have been divided, after which it comes down very easily.

The coccyx is another natural and firm rectal support. The flexed tip of this bone is well under the major portion of the rectum and is one of the most important bony structures supporting it.

An anatomical defect which of late has been receiving more attention is the abnormal depth of the cul-de-sac of Douglas in certain patients. This fact was noted as far back as 1890 by one or two writers, but received little attention until the recent writings of Quénu, Moschcowitz, Jones and others. Today many surgeons have come to believe that every case of rectal prolapse is due to this cause. The supporters of the cul-de-sac of Douglas theory as the cause of procidentia recti believe that there is a true hernia into this pouch.

*Etiology.*

While the many factors which produce intra-abdominal pressure are all contributory causes, the etiological points upon which the many methods devised for its treatment are founded may be classified under five headings:

(a) Inflammation of the mucous membrane.

(b) Insufficiency of the pelvic floor—of the bones and fleshy portions as well.

(c) Insufficiency of the natural supports of the rectum.

(d) The structure of Douglas' cul-de-sac and hernia.

(e) Loss of muscular tone.

The multiplicity of theories justifies the conclusion which I have long held that no one factor is entirely responsible, but that it is a sequential process establishing a vicious circle.

Inflammation of the mucous membrane is the oldest theory of the pathogeny of prolapse and was based on the supposition that the inflammation or catarrh, starting with the mucous membrane, spread to the other coats, ultimately involving even the supporting structures of the rectum. It is a very difficult matter to understand how great a factor inflammation really is in producing a prolapse. In many instances the mucous membrane of a complete prolapse has every appearance of being fairly normal and it is only in the later stages, when infection takes place, that ulcerations and erosions are manifest. On the other hand, it may be (as I have witnessed in one case) that an acute congestion of the liver causes so much tenesmus and straining that all of the rectal supports are over-stretched rather suddenly. The structures are violently divulsed during such a dysenteric attack.

The case referred to had a dysenteric attack following an alcoholic debauch and during the straining and vomiting which followed it, the whole rectum was protruded for three or four inches. It was a complete procidentia in every respect—so much so that immediate operation was advised. Under palliative treatment, strapping the buttocks, etc., the rectum was held in place and, much to my surprise, there has never been any further recurrence during a period of eight or nine years. In this case, evidently the muscle tone was entirely recovered, by rest and support, after the inflammatory conditions had subsided.

The numerous operative measures aimed at strengthening the natural supports of the rectum may be divided into those which attack the problem from the point of view of loss of tone of the sphincters and levator ani, and, on the other hand, those which have to do with the higher bowel, at the level of the sigmoid flexure, or other point, as being at fault in the etiology of prolapse.

In the former group may also be put the many non-operative methods of restoring tone to the muscles and narrowing the anal orifice, such as massage, submucous injections of astringents, the use of mechanical supports, electricity and medication. All these measures are, of course, helpful, but it is questionable whether they get at the root of the matter.

*Operative Treatment.*

The literature on the subject fairly teems with descriptions of operations for the cure of procidentia recti. It would almost seem that every type of procedure imaginable has been advocated at some time or other. The results reported leave no doubt that the method advocated was eminently satisfactory in the particular circumstances in which it was employed. The same method, however, under slightly different conditions may prove very disappointing. This confusion as to the type of operation best suited to the case in hand arises, first, from the paucity of rectal prolapses that fall within the experience of any one surgeon and his consequent inability to suit his operation to the case in question; and second, from failure to carry out an operation as described in all its essential details. In order to operate successfully, each case must be considered on its own merits, and

whereas any of two or three different methods may effect a cure, whichever one is adopted must be intelligently carried out with a full understanding of the factors which produced the prolapse.

It seems to be the custom of each writer to adhere to one particular type of operation, whereas in many instances to accomplish a perfect anatomical cure, one or more procedures may be required. For example, the so-called Quénu-Moschcowitz operation of obliterating the cul-de-sac of Douglas may relieve all the symptoms of a given case and prevent protrusion of the rectum outside the anus, although there may still persist a certain mobility of the lower rectum. A complete cure in such instances no doubt could be accomplished by a supplementary operation on the lower rectum, but as the patient is relieved of all his symptoms, he is satisfied with results. In the same way, an operation on the lower rectum prevents an extrusion of the gut, though there may be a certain degree of mobility or invagination of the upper rectum, which might be entirely relieved by an operation from above.

*Writer's Operation.*

From a personal experience of fourteen cases, the results of which, in all but one case, were successful from the point of view of the patient, and several of which were anatomical cures, I am convinced that in the great majority of prolapses an operation of the anal orifice should be the one first attempted. The operation which I have practised aims to support the upper rectum by a method of linear cauterization and at the same time to prevent the prolapse by narrowing the anal canal.

There is no doubt that a small percentage of complete prolapses were cured by the old operation of linear cauterization, which sets up adhesions between the rectal wall and the sacrum. Recognizing this fact, I begin the operation by pulling out the rectum to its full extent, where it is held by two tenaculae. Beginning at the apex of the protrusion, the mucous membrane is seared with the actual cautery to within two inches of the anal orifice. A rather deep line of cauterization is carried out on the posterior wall, lighter ones on either side, and a rather superficial burn on the anterior wall. Too much cauterization of the anterior wall is unsafe because of the proximity of the peritoneal cavity.* The prolapse is now reduced within the rectum.

It is a well-known fact that a ligature or clamp and cautery operation for hemorrhoids in which a large number are removed and the adjacent mucous membrane too freely excised is liable to be followed by contraction of the anal canal unless dilatation is followed up in the after-treatment. Recognizing this principle, and also the fact that the anal aperture in these cases is procidentia is sometimes enormous, I have aimed to cause a distinct narrowing above the internal sphincter by removing all the mucous membrane of the anal canal by the ligature method. The mucous membrane is seized with artery forceps and while elevated is dissected up for an inch or more. This should be done in sections, removing a quarter or more of the anal circumference at one time. As the assistant pulls down on the mucous membrane, a quarter section is ligated as high up as possible. In some instances it is advisable to use a double ligature to preclude the possibility of too much contraction at the site of the ligature. The aim should be to leave an aperture in the rectum at this upper level that will scarcely admit the little finger. After the ligatures are all in place, three or four interrupted catgut sutures are placed around the anal canal where it has been denuded of mucous membrane. This will effect a further narrowing of the canal. "V"-shaped wedges of skin are now dissected off from the external sphincter at three or four points. This leaves a gaping wound of about three-fourths of an inch in width. The wound is united as follows: With a curved needle, using silkworm gut, a deep suture is placed about the middle of the wound, rather deeply through the external sphincter muscle (a stay suture) and tied. The suture of the skin is completed with plain catgut.

*After-Treatment.*

The most important feature of the after-treatment is to confine the patient strictly to bed for three weeks at least. The bowels should not be moved until the fifth or sixth day, when a laxative should be administered late at night and an oil and saline enema in the morning. Defecation should take place on a bed-pan and the patient cautioned against undue straining. The anal region should be cleansed three or four times a day, as there is usually considerable secretion following this operation. The silkworm gut sutures are removed on the sixth or seventh day. For two or three months following the operation the patient should take a laxative as needed, rather than strain unnecessarily when at the toilet.

*Sigmoidopexy. Rectopexy.*

The various pexies were much in vogue a few years ago. None of them, however, ever appealed to the writer, so that he is unable to speak from personal experience as to their value. Anatomically, the principles upon which they are based are ill-founded, and the fact

* The eleventh case on which this operation was carried out in the essential details here described died on the tenth day of general peritonitis. An autopsy was secured and showed that there were two perforations of the upper rectum at the site of the anterior cauterization. This unfortunate result indicates very strongly that there is a good deal of danger in too free cauterization of the rectum. It is, therefore, much safer to limit the cauterization to the posterior wall and if there is excessive redundancy of the mucous membrane, two longitudinal strips can be denuded from the anterior and lateral walls and the mucous membrane united with catgut sutures.

that there is very little mention made of them in the literature, of late, would indicate that they have not stood the test of time.

A sigmoidopexy exercises very little tension on the lower rectum and therefore is not practical. A rectopexy aims to secure firmly the posterior wall of the rectum but in no way supports the anterior and lateral walls which in most cases are as much, if not more, involved in the prolapse.

*Excision.*

There is excellent authority for the operation of amputation of the rectum, but in my opinion it should be reserved for cases which cannot be relieved in any other manner. There are occasionally very extensive prolapses in which this procedure must be seriously considered. Miles recommends excision "where the apex of the procidentia corresponds to the recto-sigmoidal juncture." In other words, in a case of this kind the external wall of the prolapse would include the whole of the rectum, while the inner wall of the same prolapse would represent the invaginated sigmoid. Such cases, however, are rare and anything less than complete excision would not be apt to effect a permanent cure. While the operation of excision in prolapse of the rectum, for some reason or other, has a very low mortality in contradistinction to that which accompanies excision for cancer of the rectum, I feel very strongly that it should never be employed in the ordinary run of cases, as the operation is more or less mutilating to the lower musculature of the rectum; the levator ani must be divided; the internal sphincter is sacrificed, though the external may be saved, and it is impossible to attach them to the amputated gut in such a manner that they will ever function normally again.

One very unfortunate case that came under my observation, two or three years ago, was very largely attributable to an excision when some other method would have been preferable. The patient made a good recovery from the operation, but a very tight stricture near the anus ensued. Dilatation proving unsuccessful, a colostomy had to be performed to cure the stricture. When the stricture had been cured and the colostomy closed, a prolapse of even greater extent followed within two or three months. The next attempt to relieve the prolapse was an abdominal operation with closure of the cul-de-sac of Douglas. Within a few months the prolapse recurred, and when I first saw the patient there was a protrusion of about three inches, with absolutely no fecal control. The prolapsed gut was out at all times except when the patient was lying on his back, and he was absolutely incapacitated. After two or three plastic operations under local anesthesia, I succeeded in so improving his condition that he was able to resume his occupation as a tailor. At defecation there still remained a protrusion of an inch or more, but it was spontaneously reduced and did not recur when he was walking about. He had absolute incontinence, however, and naturally was much inconvenienced on that score.


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## PITUITRIN IN THE THIRD STAGE OF LABOR

BY ROY J. HEFFERNAN, M.D., BOSTON.

THE advent of anaesthesia, of asepsis and antisepsis and the development of new and improved methods of procedure and technique have placed obstetrics, together with the other branches of surgery, on a firm scientific basis.

The march of progress has been an exceedingly gratifying and commendable one, but the time has not yet come when our profession may rest on its laurels and consider sufficient its work in safeguarding women from the accidents of childbirth.

For the distressing fact remains that our very incomplete statistics show that more than ten thousand women die in childbirth annually in the United States.

De Lee[1] states that more women die from accidents of the third stage of labor than during the other two combined.

The purpose of this paper, therefore, is to bring to the attention of physicians the advantages of pituitrin as a preventive of the dangers that occur in the third stage of labor.

The author advances no claims to priority in the use of pituitrin in the manner to be described. The drug for some time has been proving its value, in the third stage of labor, to many obstetricians.

The action of the extract of the posterior lobe of the hypophysis cerebri in stimulating uterine contractions, needs no description here. Even the laity knows that "the needle" will incite stronger and more frequent pains and will usually shorten and facilitate labor.

The administration of pituitrin before the birth of a child, however, is always to be cautiously advised. The many contraindications

to, and accidents following its use have been described by various authors. Kosmak[2] has warned against the careless use of pituitrin during the first and second stage of labor and has observed bad effects varying from laceration of the cervix and perineum to complete rupture of the uterus. Asphyxiation of the foetus through impairment of the circulation, is also occasionally seen.

There are, however, no contraindications to the employment of pituitrin in a one-half to one c.c. dose, given hypodermically, immediately after the birth of the child.

Tetanus and strictura uteri, the phenomena which preclude the use of ergot before the delivery of the placenta, apparently do not follow the injection of pituitrin in the doses given above.

On the contrary, we have in the latter drug an oxytocic which stimulates the uterus to contract strongly and at regular, frequent intervals, aiding the complete detachment of the placenta and favoring its expulsion with the membranes, *in toto*. Moreover, the firm contraction and retraction of the uterine musculature effectively occludes the uterine sinuses, which are simply blood spaces between the muscle bundles, lined with a single layer of endothelium.

It is reasonable to assume that the routine administration of pituitrin at the beginning of the third stage of labor, if it were more generally practiced, would considerably diminish the number of lives lost each year in the United States from post-partem hemorrhage, at present estimated to be over twelve hundred.

Moreover, a conduction of the third stage which would tend to prevent the breaking off and retention of pieces of placenta and membranes with their unpleasant sequelae: hemorrhage, sepsis, subinvolution and endometritis, would certainly do much to lower our puerperal morbidity.

Prior to the introduction of pituitrin into obstetrical practice by Blair Bell in 1900, the maneuver of Credé, massage of the fundus and manual removal of the placenta, were the procedures of choice when the uterus seemed unequal to its task during the third stage.

The former two are easy of application but are so strenuously employed in some cases as to be more productive of harm than good.

Gibson[3] deprecates the widespread use of vigorous Credé expressions and feels convinced that massage of the uterus is occasionally responsible for a disturbance in the mechanism of separation, and is of the opinion that at the present time, one sees rather too much massage and uterine manipulation, than too little.

The accompanying table is published through the courtesy of Dr. Ryder of the Sloane Hospital for Women, New York City, where the cases were observed. One c.c. of obstetrical pituitrin was administered hypodermically to one hundred patients immediately after the delivery of the baby. The fundus was held very gently and no massage or attempt to Credé was made until twenty minutes had elapsed.

In all cases strong contractions of the uterus, recurring at regular intervals, began from two to six minutes after the injection. Subjectively, the patients were not disturbed very much by the contractions, far less so, in fact, than if active massage and Credé expressions were practiced.

| | | Given Cases Pituitrin | Cases Without Pituitrin |
|---|---|---|---|
| Delivery | Normal vertex .. | 86 | 88 |
| | Forceps ..... | 8 | 8 |
| | Breech ..... | 5 | 4 |
| | Twins ..... | 1 | 0 |
| Placental delivery | Spontaneously .. | 25 | 0 |
| | Credé (slight) .. | 75 | 93 |
| | Credé (strong) .. | 0 | 5 |
| | Manual curettage | 0 | 2 |
| Average length of third stage .. | | 18.2 min. | 17.5 min. |
| Average blood loss, third stage .. | | 5.9 ozs. | 8.2 ozs. |
| Ergot necessary after third stage | | 20 | 45 |

One patient in four expelled her placenta spontaneously in less than twenty minutes. Seventy-five required a slight Credé to push out the detached placenta. A comparison with the one hundred cases which did not receive pituitrin at the beginning of the third stage shows that in no instance was the placenta delivered without help, slight Credé having been required in ninety-three, strong Credé in five and manual curettage in two cases.

It is unquestionably a fact that pituitrin shortens the third stage of labor, although the table would seem to show the opposite to be true. This is explained by the fact that the full twenty-minute period was permitted to

elapse in the pituitrin cases before any attempt was made to express the placenta, and the average is below twenty minutes because twenty-five patients delivered their placenta spontaneously. In the non-pituitrin cases, however, the attendants were not charged to wait twenty minutes and attempts to express the placenta were made earlier.

The average blood loss during the third stage is definitely less in cases which received pituitrin, as would be expected.

It has been claimed that the use of pituitrin during labor predisposes the uterus to later relaxation and hemorrhage. This is probably true when the drug is administered in the first or second stage, in too large or too oft repeated dosage, so that over stimulation of the uterus with subsequent depression results.

This does not follow its use during the third stage, however. On the contrary, as the table shows, it was considered advisable to give ergot after the third stage to only twenty per cent. of the patients who received pituitrin, whereas in forty-five per cent. of the control cases it was thought necessary.

The series is a small one, to be sure, but it seems to show the use of pituitrin at the beginning of the third stage of labor is free from harmful effects and aids the natural forces in successfully completing the labor.

Cases of adherent placenta are occasionally seen in which two and even three doses of pituitrin are required to effect separation.

The author attended such a case which required an additional dose administered two hours after the first one, and another case in which the placenta could be delivered only after three one c.c. doses had been given at hourly intervals. For a certainty, in these two cases, and probably in many more, without pituitrin, manual removal of the placenta, with its attendant danger of infection and perforation, would have been indicated and practiced.

Rarely one sees a case of adherent placenta which will not respond to pituitrin and Credé expression. A history of a previous endometritis, or a cause for placentitis, such as nephritis, toxemia, heart disease, syphilis, etc., will usually be obtainable, and the placenta will have become firmly affixed to the uterine wall through the formation of fibrous tissue.

Although pituitrin will usually fail to detach the placenta in these cases, it does no harm and is surely worthy of a full trial before the adoption of more radical and necessarily, more dangerous, procedures. Moreover, as a partial separation of the placenta may occur, exposing the large utero-placental sinuses and rendering post-partem hemorrhage imminent, a firmly contracted uterus is desirable.

The author gave three one c.c. doses of pituitrin at two hourly intervals to an enormously stout woman, forty-two years of age, after the delivery of an eight months, macerated, anencephalic monster. Credé maneuver, first gentle, then strong, was attempted but without effect. Twenty-four hours later, a manual extraction of the placenta was performed, with considerable difficulty, not because of any spastic condition of the uterus, which was moderately relaxed, but because of the firm adhesions between the placenta and uterus. The former contained a large number of infacts. There was no abnormal bleeding at any time. It is in cases of this type that pituitrin will usually prove ineffectual in causing placental detachment; but its use obviates the danger of hemorrhage until the placenta can be removed by other methods.

## CONCLUSIONS.

The data presented would seem to justify the following conclusions:

Pituitrin administered at the beginning of the third stage of labor is effective in aiding a prompt and complete detachment and expulsion of the placenta and membranes.

Tetanus uteri with incarceration of the placenta does not occur from the careful use of pituitrin in the third stage of labor.

Pituitrin tends to prevent relaxation of the uterus and post-partem hemorrhage during and after the third stage of labor.

Manual removal of an adherent placenta should not be attempted until at least three doses of pituitrin have failed to produce detachment.

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# SARCOMA OF BONE*.

BY TORR WAGNER HARMER, M.D., BOSTON.

THERE is considerable controversy about bone tumors. Even pathologists who have the advantage of handling the material and examining it microscopically are not in agreement regarding the cell of origin of some of these growths. The classification of bone tumors therefore varies with different investigators. The roentgenologist cannot in all instances make a positive diagnosis but can only describe various appearances in shape, density, and location of the x-ray shadows. There has not been as yet sufficient correlation of clinical findings and x-ray appearances to warrant basing the diagnosis in all cases entirely upon the x-ray interpretation. Naturally, in the commoner conditions the clinical findings and associated x-ray shadows are known. However, in certain cases even of the commoner conditions the question of benignity or degree of malignancy confronts us and upon the decision naturally depends the surgical procedure. In this brief paper I will confine myself to *sarcoma* of bone.

Inasmuch as sarcoma of bone may extend from one portion of bone to another, the general classification into periosteal, bone, and marrow types is not satisfactory. Any classification is open to criticism. The following classification of Ewing[1] is comparatively simple but sufficiently comprehensive for practical purposes.

1. Osteogenic. 2. Giant cell. 3. Multiple Myeloma. 4. Endothelioma. He subdivides the osteogenic type into (*a*) fibrocellular; (*b*) telangiectetic; (*c*) sclerosing.

The fibrocellular usually originates from the deeper layers of the periosteum. It may be firm, rich in stroma and slowly growing, attaining considerable dimensions before invading the soft parts on one side or bone on the other. On the other hand, these fibrocellular growths may be soft, cellular and rapidly growing, with early invasion of soft parts and bone. The cells of these tumors produce more or less bone roughly in inverse proportion to their rate of growth; do not expand the shaft and are not pulsating. By x-ray they show a shadow applied to the side of the shaft usually with the periosteum stripped back at the upper or lower limits or with shadows of bony density radiating from the shaft. This has been regarded as pathognomonic. It is to be remembered that in syphilitic periostitis there are also present at times radiating lines of bony density. These, however, are smaller, finer, and more loop or hair-pin like. This fibrocellular growth may undergo fatty, mucous, or cystic degeneration, may be subject to hemorrhage and necrosis and therefore may show on section giant cells. These are however of the foreign body type; the growth is nevertheless a malignant fibroblastoma and not a giant cell tumor. The basal cell of this group is the fibroblast. This is the ordinary connective tissue cell which produces fibroglia and collagen fibrils and in certain situations elastic fibrils. Under certain conditions the cell may produce homogenous intercellular substances, mucin, chondromucin, or osseomucin. In other words fibroblasts under certain conditions may lay down mucin, cartilage, or bone. According to the predominance and character of the intercellular substance, the terms osteosarcoma, chondrosarcoma, myxosarcoma, fibrochondrosarcoma, etc., arise. All are however malignant fibroblastomata and the recognition of this fact greatly simplifies classification and efforts to analyze any considerable series of cases.

Another form of osteogenic sarcoma is the so-called telangiectetic type. This arises from the blood spaces of the bone or of the marrow. Spontaneous fracture may be the first evidence of the disease, inasmuch as it is usually rapidly growing and speedily causes bone absorption. Under this heading falls the so-called bone aneurism, a condition in which the vessels are widely dilated into sinuses, the tumor tissue correspondingly reduced and the osteoid tissue very slight or missing. Common sites of the growth are the head of the humerus, head of the tibia, lower end of the femur. The periosteum may be expanded and may lay down a thin shell of bone which may crepitate. However, this is not usual as the progress is very rapid, malignancy is great and metastases into the lungs early. These growths may pulsate and may even yield a bruit.

Still another form of osteogenic sarcoma is the sclerosing type. Here there is an extensive production of solid bone. The end of a long bone may be converted into ivory-like material with obliteration of the marrow and shaft. The clinical course is prolonged. The growth may produce considerable swelling of the bone. Although not formidable in itself, and although scantily supplied with blood vessels, nevertheless it is prone early to pulmonary matastases.

*Giant-cell Tumor.* You are all familiar with the controversy over the nature of this growth. Owing to its relatively benign nature the term "giant-cell tumor" (Bloodgood[2]) rather than "giant-cell sarcoma" seems more appropriate. The term, hemorrhagic osteomyelitis does not seem appropriate. The scope of the paper does not justify weighing the arguments advanced in favor of this or that origin of the giant-cells, *i. e.* whether they are all foreign-body endothelial leukocytes (*i. e.* of the osteoclastic type) or whether they are a mixture of such leukocytes and true multinuclear fibroblasts. You are all familiar with the site of these growths,—upper end of the humer-

* Read before the Surgical Fortnightly Club at Boston, April 6, 1920.

us, upper end of the femur, upper end of the tibia, lower end of the femur, lower end of the radius, etc. There is no tumor which causes so marked and so globulated an expansion of bone. Pathological fracture may be the first symptom. The ray shows a globular expansion limited by a periosteal shell with a more or less trabeculated center. In passing let me mention the simple bone cyst which in the ray shows some expansion of bone but more tubular and elongated (*i. e.* less globular) and the center homogeneous rather than trabeculated. I mention these simple cysts here because it is of interest to note that they are regarded by some as extinct giant-cell tumors or angiomas. The common sites of these simple cysts are the upper end of the humerus, upper end of the femur, lower end of the femur, upper end of the tibia, etc., *i. e.* the same as giant-cell tumors. Again, in favor of this opinion is the fact that certain lesions which have been regarded as simple cysts and which have been submitted to curetting have recurred. At this juncture also let me mention the condition known as osteitis fibrosa, sometimes given the special name in children, "osteo dystrophia juvenilis." It is doubtless closely related to osteomalacia. There is defective calcification and the marrow is replaced by cellular fibrous tissue leading to thickening, weakening and deformity. There occur either multiple fibrous lined cysts or at times giant-cell tumors. The clinical course of giant-cell tumors is slow, and breaking through of the limiting periosteal shell occurs late. Most of these cases may be cured by one or more curettings or by resection. The situation of some however may defy surgical eradication. I refer particularly to giant-cell tumor of the vertebrae. In these cases I favor surgical intervention with the removal of as much growth as possible followed by systematic use of Coley's toxins. The most striking case[3] I have had in substantiation of this is a boy of fifteen kindly referred by Dr. C. A. Porter in 1912 after an attempt at removal had been made. A recurrence which bulged the soft parts to an extent of 1½ inches over an area 5½ inches long and 3½ inches wide, and partial paralysis of one leg developed. Seven months of intensive treatment with the toxins entirely sloughed the mass and paralysis disappeared. The boy has worked continuously since as a chauffeur and is in perfect health now, seven years after discontinuance of the treatment.*

*Multiple Myeloma.* Let a few words suffice for this rare condition. It arises from some marrow cell, perhaps the plasma cell, involves a number of bones, especially the ribs, sternum, vertebrae, skull, humerus and pelvis, and procedes to a fatal termination. It is never osteogenic. Hemorrhage into the tumor is common resulting in softening and cysts. The Bence-Jones' albumose-body in the urine is said to be particularly characteristic. It has been observed however in only about fifty per cent. of the cases and it is to be remembered that it also occurs in myxoedema, leukemia and bone carcinoma.

*Endothelioma.* The occurrence of bone endothelioma as a primary tumor is not established to the satisfaction of all pathologists and certainly, such a diagnosis should not be made without the rigid elimination of possible primary outlying foci, particularly the thyroid, adrenals and kidney. True primary endotheliomas of bone must be exceedingly rare. They may appear as single bulky circumscribed growths or as multiple small marrow tumors. The bulky growths arise from the marrow of the long bones, early perforate and develop externally with or without the formation of bony capsule, and are generally pulsating. The rare multiple cases curiously involve the sternum, vertebrae, skull and pelvis, as do the multiple myeloma, but the microscopic structure is entirely different.

From the sarcomata which involve the exterior of the bone must be differentiated callus, osteoma, chondroma, para-osteal lipoma, myositis ossificans, sub-periosteal hemorrhage of scurvy, syphilitic periostitis, extensive osteomyelitis with considerable repair, and the rare fibroma. From the sarcomata which involve the interior of bone must be differentiated metastatic carcinoma from breast, thyroid, prostate, etc., metatastic hypernephroma, bone syphilis and tuberculosis, simple bone cysts, ecchinococcus cysts, osteomalacia, the internal fibroma of the maxillae, and the rare enostoses. We should also be mindful that there are marrow changes in the leukemias, including chloroma and in Hodgkin's granuloma.

From this brief summary it is obvious that the diagnosis of a bone lesion demands a careful history and complete physical examination. The conditions involving bone are inflammatory, neoplastic, and nutritional. Of the neoplastic, there are both benign and malignant. Of the malignant there are both primary and metastatic, and these exhibit all degrees of rapidity of growth. The history should elicit the following information:—Age of individual, duration of trouble, how first noted, question of injury, of pain, of disability, of loss of weight, of digestive disturbance, of dyspnoea, of cough, of hemoptysis, of hematuria, of previous operation especially on the breast, thyroid, prostate, kidney, etc. Physical examination should be most painstaking.

*Lips,*—especially those covered with moustache or beard for scar of previous operations for epithelioma. I have twice seen malignant involvement of the jaw secondary to operation upon the lip in which the operation had so far ante-dated the appearance of the pathologic

* This patient is still in excellent health, with no subjective or objective sign of recurrence, eight and one-half years after treatment.

fracture of the jaw that the two were not associated by the patient. The history was brought out only by questioning and the scar observed only by closs examination through the heavy moustache.

*Teeth—tonsils—neck,*—for glandular enlargements. Also axilla, groins, etc., whether or not they are the natural drainage areas of the lesion.

*Thyroid,*—or scar of previous operation on same.

*The breasts,*—or scars of previous operation on same.

*The lungs.* This is of extreme importance, for metastases in the lungs occur with very great frequency and often very early in cases of bone sarcoma. Obviously no operation of any magnitude should be undertaken without being morally certain that the lungs are not involved. Realizing that the detection of very early pleural or pulmonary metastases requires great skill, we as surgeons should not hesitate to appeal to our medical confrères. If we are suspicious that the bone lesion is sarcoma, we should always have a Roentgen examination of the chest. That most conscientious examination and use of most refined methods of diagnosis may fail to detect early metastases is illustrated in a pitiful case[4] which is indelibly impressed upon my memory. The patient was a primigravida, 29 years old, six and one-half months pregnant, referred by Doctors Moore and Simmons of Brockton, Mass., for periosteal sarcoma, just below the head of the humerus, of a few weeks' duration. After feeling as morally certain as could be that the process was still localized, I performed an interscapulo-thoracic amputation as the only hope of cure. The operation went smoothly and quickly, the pulse was 80 at its close. The convalescence was uneventful. She was delivered at term by her physician. In nine months, however, she died within a few weeks of sarcoma which appeared almost simultaneously in the femur, tibia and lungs. Section of the specimen by the late Dr. William F. Whitney had shown the growth very circumscribed, the joint uninvolved but the cephalic vein plugged and distended by a malignant thrombus.

*Liver,*—as the possible seat of metastases, ecchinococcus cyst, or enlargement from leukemia, syphilis, etc.

*Spleen,*—in general for similar reasons.

*Kidneys,*—question of hypernephroma.

*Prostate,*—question of cancer.

*Urine,*—for blood, for Bence-Jones' albumose.

*Blood,*—white count; differential count of white cells (question of leukemia or the occasional eosinophilia of hydatid infection, Hodgkin's granuloma, etc.). Wassermann test is good practice in all bone lesions. A positive test may indicate merely a concurrent infection independent of the bone lesion. We should however be mindful of the fact that rarely sarcoma may develop on a syphilitic background.

*Other bones,*—in cases in which the examination of the lesion in question suggests that it may be only one of a condition which is usually multiple. In such cases x-rays of other bones are also indicated.

Our present knowledge of the clinical course and appearance and x-ray findings of bone lesions is so far from absolute that less thorough investigation is not justifiable. Without a complete history and physical examination it is not fair to send a patient who presents a bone lesion immediately to the Roentgenologist. It is unfair to the Roentgenologist to expect him to make a diagnosis, because his branch of medicine is not an absolute science. He is still dependent upon us for the correlation of clinical history and examination with x-ray shadows. By coöperation of the surgeon and internist with him, he has learned to interpret the x-ray pictures of the commoner lesions. Only by continued coöperation can we expect him to recognize with certainty the less common lesions. It is unfair to ourselves to send a patient who presents a bone lesion immediately to the Roentgenologist because we are not developing our observation and judgment. It is unfair to surgery because some illadvised operations may be undertaken; and it is unfair to the patient because in consulting us he is placing in us a supreme confidence which demands our best efforts.

(Note. Since the presentation of this paper, Dr. E. A. Codman, 227 Beacon Street, Boston, started "A Registry of Cases of Bone Sarcoma." Associated with him are Doctors Bloodgood and Ewing. Every surgeon should cooperate to further this splendid undertaking by forwarding histories, x-rays, and pathological material of any living case of bone sarcoma which he may have treated. A critical study will be made of all cases in order to ascertain the methods of treatment which have proved of greatest benefit in the various types of bone sarcoma.)

REFERENCES.

[1] Ewing: Neoplastic Diseases, 1919, p. 265 *et seq.*
[2] Bloodgood: Annals of Surgery, 1912, lvi, pp. 210-240; Journal of Radiology, March, 1920.
[3] Harmer: BOSTON MEDICAL AND SURGICAL JOURNAL, 1914, clxxi, p. 260, and 1915, clxxii, pp. 442, 443.
Coley: Address before Third International Conference of Cancer Research, Brussels, August, 1913. p. 161.
[4] Harmer: Canadian Medical Association Journal, 1915, v, p. 828.

IN dealing with children remember that many chronically tired, anaemic, underweight boys and girls need, in addition to good food and fresh air, rest. It is always well to investigate the rest habits of children and prescribe the number of hours and regular rest periods. Few children need medicine except for well defined conditions for which there are definite indications.

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## NEW LIGHT ON SYPHILIS.

THE discovery of the spirocheta pallida by Schaudinn in 1905 was the final step in the identification of syphilis. As far back as the 18th century, when the venereal diseases were considered by most medical men to be separate manifestations of one disease, Benjamin Bell, by inoculation experiments on student volunteers, proved that syphilis and gonorrhea were distinct diseases. His results, however, were upset by the classical experiment of John Hunter, who in 1767 contracted syphilis by inoculating himself with impure pus from a case of gonorrhea. The identity of the two diseases remained confused until Ricord, about the middle of the 19th century, showed that they were not the same.

The development of methods demonstrating the spirocheta pallida from lesions has greatly aided the early diagnosis of syphilis. Ehrlich's discovery of salvarsan has given the medical profession a measure of great value in controlling the infection. It is probable, however, that we are far from hearing the last word in regard to the management of this disease.

From the Rockefeller Institute for Medical Research (Studies; 1921, Vol. XXXVIII) comes a series of articles by Louise Pearce and Wade H. Brown, which opens up a wide field for research into the nature of the disease, and which has already yielded a number of facts, most important from the clinical point of view.

In the first place, their experiments with rabbits bear out the results of other investigators in showing that generalized infection follows inoculation of the testis or scrotum with emulsions of infected tissue. This general infection shows itself as alopecia, keratitis, onychia, paronychia, and granulomata.

A most important point for the clinician is the rapidity with which the infection spreads from the point of inoculation. Forty-eight hours after scrotal inoculation Pearce and Brown found the organisms in the regional lymph glands. Within a week after inoculation, spirochetae were found in the circulating blood.

The removal or suppression of the local infection served to intensify the general systemic reaction. For example, ten rabbits were inoculated in the right scrotum. Forty-eight hours later the entire right scrotum and testicle were amputated with a wide margin. All these rabbits developed an unusually well-marked generalized syphilis. Also, "by inoculating one testicle instead of two, the incidence of generalized lesions was markedly increased. When the reaction at the site of inoculation was further reduced by early removal of the infected organs, generalized lesions developed in almost every instance." (p. 165.)

The suppression of the testicular lesion by the use of a drug (arsenophenylglycyl dichloro-m-aminophenol), whose effect in inducing resolution of syphilitic lesions was much greater than its spirocheticidal action, also resulted in a more frequent development of generalized lesions. These phenomena suggest that a local infection tends to develop in the organism as a whole an immunity to the spirochaeta.

If the same holds true in man, one can imagine the pernicious effect of excision of the chancre, as was once practiced, or of the administration of enough salvarsan to heal the primary sore, but not enough to thoroughly sterilize the patient.

Perhaps the most interesting phase of the work of Pearce and Brown had to do with the infection of pregnant rabbits. Of eight rabbits infected at the beginning of gestation, four showed no signs of infection. Of the other four, three showed only very slight local reactions. Two of them, however, showed marked constitutional disturbances, and of the litters they produced, one young one in each was born dead, while of the fifteen young, only one survived the first week of life. "Colles's Law," promulgated long before men knew what syphilis really was, is thereby shown to have a basis in fact.

In a limited series of experiments the writers showed that syphilis of the central nervous system may follow ordinary testicular inoculation, and this invasion may take place at a very early period of the infection.

If we may believe that the course of a luetic infection is fundamentally not dissimilar in rabbit and in man, we can draw from this extremely interesting work of the Rockefeller Institute the following practical conclusions:

1. Extension of the spirocheta pallida from the primary sore to regional lymph glands and to the blood stream probably takes place at an early period. It may be questioned whether the extension occurs as early in a chancre which has developed by the growth of a few organisms as it does after artificial massive inoculations.

2. Involvement of the central nervous system may occur early in the course of the disease. That this is true in man has been shown by clinical observers.

3. Excision of the chancre, or the administration of medication sufficient to heal the chancre, but insufficient to sterilize the whole body, is likely to increase the severity of the systemic infection.

## THE ATTITUDE OF DR. CHARLES H. MAYO TO THE NURSING PROBLEM.

IT has been publicly reported that Dr. Charles H. Mayo has stated that "The nursing union has come to be the most autocratic closed shop in the country." During the interview he is also reported to have said in substance that this country needs 100,000 subnurses to relieve the shortage; that the leaders of organized nursing have carried their methods too far and with a too high hand, and in so doing have lost sight of the impulse of their profession, which is alleviation of the pain of the world; that nursing cannot be bound by hard and fast laws; that nurses are putting prohibitive prices on their services; that their demands for far shorter hours and changes in hospital regulations cannot be met without sacrificing standards; that some nurses have reverted to strikes; that the educational standards for registration by states have gone beyond reason; that any intelligent girl can acquire all necessary knowledge required of a nurse in two years; that the remedy for all this is the training of "subnurses or nursing aids," who will accept smaller pay.

As an illustration, Dr. Mayo says that "seven dollars a day for an eight-hour day, is more than exhorbitant, and that men and women of moderate means cannot pay such charges. He further contends that good nurses are born; they are not made and must have certain fundamental qualities, must not be always thinking about themselves, and whose hearts must go out to suffering humanity with a desire for self-sacrificing service. This is a severe indictment and as applied to some nurses is pertinent. Theoretically, the remedy suggested is logical. There is doubt about the development of this solution of the problem because the great mass of women have other occupations or are not inclined toward nursing and, according to Dr. Mayo's specifications, very many never would be successful in this field.

Really high grade nurses who practice for the benefit of the sick with remuneration wholly secondary in their minds, are probably more scarce than physicians who are unselfish and devoted servants of humanity, but women have lived and some are still alive, who measure up to the highest ethical standards, and as time goes on their places will be filled. The question really is, how may more women of the right sort be induced to enter the nursing profession? The subnurse or practical nurse who is not registered has been found, in many instances, to be as exacting as the registered trained nurse, and a considerable number are competing with the graduates of good training schools in the pay demanded. It is very largely a question of supply and demand. The development of public health and industrial nursing has taken a very large proportion of trained nurses out of private duty work, and the hospitals are not satisfied with mediocrity in the teaching and administrative positions necessarily filled by trained nurses. There are so few private duty nurses left that they easily fall into the habits of some professional men and demand all that the clients can stand. We can exhort young women to have high standards, but only a proportion react for very long to such advice under the temptation and opportunity afforded by the requirements incident to the modern treatment of the sick.

State boards are not so much to blame, for they register more than eighty per cent. of the graduates of training schools on their first examination, nor do they require of training schools unreasonable standards, for most young people need moderate intellectual development and association with high-grade instructors to bring about consistent and persistent commendable habits of life. Nurses as well as physicians should be beyond the influence of temptation sometimes presented to those who have to deal with the inherent or acquired frailties of life. A nurse should be more than a servant trained to perform mechanical things well, for almost as much as the physician, she may have to minister to a mind as well as a body diseased, and she should and usually does act as a teacher to the patient under her care, as well as to the rest of the family. Training schools and state boards have come to the conclusion that maturity of mind and habits fixed by repetition are essential to a nurse's highest usefulness and cannot often be acquired in a short training. It is perfectly true that a girl can learn to be clean, use a catheter and sterilize instruments in less than two years. So, too, can young men in college, if fairly bright,

learn all the facts necessary to pass the examinations, but a mind crammed with facts in the shortest possible time may not be the best trained mind nor make the most influential citizen in after life. Short courses of study are not generally endorsed by educators and the well-equipped nurse is a well educated woman in this day.

The shortage of nurses is to be deplored as strongly as Dr. Mayo puts the case and nurses who are not mindful of their opportunities to do the greatest good are to be unsparingly condemned, and every means should be employed to secure more nurses, both trained and practical, but the solution of this great problem has not yet been published. It is probably an economic as well as an ethical problem. So long as young women can develop earning capacity by short business courses the nursing profession will suffer for lack of matriculants. Then, too, many parents dissuade daughters from taking up this training. The public should be appealed to in every reasonable way to send recruits.

## AN OUTRAGEOUS LIBEL.

The daily papers have reported that a representative of the Westinghouse Electric and Manufacturing Company said at one of their "safety meetings" at the State House: "I have said to you physicians at other meetings, and I will say to you again here, that your charges are so outrageously exorbitant that they are like sentencing the sick to death."

A statement of this character warrants the use of the ugly word in reply.

The statement that physicians as a class are most considerate of the poor and that reputable practitioners are never extortionate, has never been successfully challenged. It is true that fees which seem large to those unfamiliar with the quality of service rendered are often referred to, but no honorable physician has ever seriously encroached on the financial resources of a worthy patient.

A reputable newspaper should have refused to publish a statement of this character.

## RESIGNATION OF MISS MARY M. RIDDLE

Public announcement has been made of the intended resignation of Miss Mary M. Riddle, Superintendent of the Newton Hospital for about twenty years. Miss Riddle has been so long identified with the Newton Hospital that the institution has come to be regarded as an exponent of the ideals of this leader in the nursing profession. She has been prominent in state and national nursing organizations and has been chairman of the Board of Registration of Nurses since it was created in 1910. It is hoped that she will continue to lend her influence to all matters relating to the education of nurses.

## MEDICAL NOTES.

Later information regarding Dr. Millard, referred to in connection with vaccination, is that listed in the Toronto, Ontario, Telephone Directory for January, 1920, the following appears: Millard, Dr. F. P., Osteopathic physician.

The death of Dr. George H. Saltmarsh of Lakeport, N. H., September 28, 1921, is reported. He was a graduate of Dartmouth Medical College and has practiced in Lakeport since 1884. He was president of the New Hampshire Medical Society, 1896-1899, and was recognized as one of the leading practitioners of New Hampshire. He was a public-spirited man, having served in both branches of the Legislature, and was Mayor of Laconia for the years 1911 and 1912.

The death of Ivan Pavlov, the Russian scientist, is reported as due to starvation. The "Pavlov dog" is often quoted in articles relating to digestion, for the unique procedure of making an isolated pouch of a dog's stomach by which digestion could be studied, enabled this investigator to give valuable information. The papers make the following statement:

"In his acute misery he wrote to a friend at Kiev that, whereas, he once had made laboratory work his first ambition, now he would be so happy to peel a few potatoes. The friend procured food for him from the Kiev Medical Society, but it came too late. He died in a hospital of the combined effects of hunger and cold.

"This man was one of those 'destitute, afflicted, tormented; of whom the world was not worthy.' It is a ghastly irony that he whose researches have enabled countless human beings to make the best use of their food, should be rewarded, in the inverted scale of values that bolshevism establishes, by starvation."

The Health Bulletin issued by the Brookline Board of Health for September, announces the plan to establish a school in bodily mechanics under the direction of Dr. Francis P. Denny, Dr. Fritz B. Talbot and Dr. Augusta G. Williams. Dr. Armin Klein of the Orthopedic Department of the Massachusetts General Hospital, will have full charge of the work. In the same issue is an article by Dr. Robert B. Osgood under the title, "Efficient Use of the Body," in which is clearly shown the effect of bad postural habits on health. Everybody having responsibility for the health of the growing child should read the article.

THE SEVENTY-FIFTH ANNIVERSARY of Ether Day will occur at the Massachusetts General Hospital October 18 at three o'clock P. M., in association with the centennial of the Hospital. Short addresses will be made by Dr. Henry P. Walcott, Major General Merritte W. Ireland, U. S. A., Dr. Frederick C. Shattuck, Dr. Harvey Cushing and Dr. C. Macfie Campbell.

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HEALTH ADMINISTRATION FOR SERBIA.—Dr. George J. Nikolitch, under-secretary and first medical officer of the Serbian Ministry of Health; Dr. Georges Joannovitch, professor of pathological anatomy, and Dr. Stankovic, professor of internal medicine in the medical school of the University of Belgrade, as a commission, are on a tour of the United States and Canada for the purpose of securing information which will aid in the promotion of public health and medical education in Serbia. Serbia is in a pitiable condition, for of the three hundred doctors in that country previous to 1914, half have died of typhus fever.

The Commission has been the guest of the Rockefeller Institute. Especial information will be sought concerning public health education, child welfare, school hygiene, preventable diseases, and tuberculosis. The University of Belgrade, like Dartmouth, only gave two years of medical instruction, the students going from there to Vienna and Paris for the remainder of medical instruction.

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AT a clinical meeting of the Memorial Hospital Staff, Worcester, Mass., Friday, September 30, at 8 P.M., the following program was presented: X-ray picture of calcified kidney, X-ray Department; Demonstration of autopsy findings in case of abscess of lung and stricture of esophagus, Dr. Walter C. Seelye; Study of etiology of case of fatal hemorrhage from esophageal varices, Dr. L. C. Miller; Caesarean Section—study of 100 cases, Dr. W. H. Rose.

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STAFF CLINICAL MEETING, Boston City Hospital, Cheever Surgical Amphitheatre, Friday, October 14, 1921, at 8.15 o'clock P.M. Topic: "Late Syphilis." Speakers: C. Morton Smith, M.D.; James B. Ayer, M.D.; Abraham Myerson, M.D. Open discussion. Demonstration of cases. Physicians and medical students invited.—

H. ARCHIBALD, NISSEN, M.D.,
*Committee.*

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IN the hope of promoting closer affiliation and increased interchange of ideas between the physicians of the vicinity and the laboratory workers of the Medical School, announcement of the meetings of the Harvard Faculty Research Club will be made regularly in this JOURNAL throughout the academic year. A cordial invitation is extended by the committee in charge to the physicians in and around Boston to attend, whenever interested. Anyone sending name and address to Miss Elizabeth Putnam, Harvard Medical School, will be put on the regular mailing list of the Club.

The meetings are held each Friday, beginning October 28, in the amphitheatre of Building A, from 12.30 to 1.30 P.M. Free discussion of the paper presented is invited. The list of speakers until Christmas is as follows: October 28, Prof. L. J. Henderson; November 4, Prof. W. B. Cannon; November 11, Dr. C. T. Brues; November 18, Dr. C. K. Drinker; November 25, Prof. G. H. Parker; December 2, Dr. W. R. Miles; December 9, Drs. G. R. Minot, J. H. Means, et al; December 16, Dr. N. C. Foot.

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DURING the week ending October 1, 1921, the number of deaths reported was 198 against 196 last year, with a rate of 13.63 against 13.66 last year. There were 36 deaths under one year of age against 34 last year.

The number of cases of principal reportable diseases were: Diphtheria, 27; scarlet fever, 15; measles, 12; whooping cough, 1; typhoid fever, 5; tuberculosis, 61.

Included in the above were the following cases of non-residents: Diphtheria, 1; typhoid fever, 1; tuberculosis, 17.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 2; tuberculosis, 18.

Included in the above were the following cases of non-residents: Tuberculosis, 4.

## Obituary.

### BENJAMIN F. MILLINGTON, M.D.

DR. BENJAMIN F. MILLINGTON, 61, of South Londonderry, a prominent physician and well known throughout the southern part of Vermont, died September 20, in Memorial Hospital at Brattleboro, Vt., where he was operated upon September 19. Dr. Millington was critically ill several years ago from an attack of appendicitis and peritonitis, and since that time had been more or less afflicted with intestinal troubles. Recently he fell against the door of his automobile, receiving an injury which necessitated his operation.

He was born in St. Clair, Pa., December 4, 1859, receiving his medical education at the University of Pennsylvania and University of Vermont. Upon coming to Vermont thirty-five years ago, he first settled in Halifax, three years later moving to South Londonderry. He had built up a large practice. He was associated extensively in the lumbering business with his son, Daniel K. Millington of Peru.

Dr. Millington's first wife was Miss Emma Krebs of Pottsville, Pa., who died about 20 years ago, leaving three sons, Daniel K., W.

Parker Millington of Hazelton, Pa., and Robert K., who died about 10 years ago. His second wife was Miss Susie Hapgood, daughter of Mr. and Mrs. M. J. Hapgood of Peru, who survives him, with one daughter, Loraine. He also leaves one brother, Harry Millington of New Bloomfield, Pa.—*Springfield Republican.*

## Miscellany.

### HEALTH FORTNIGHT TO MARK SEMI-CENTENNIAL OF AMERICAN PUBLIC HEALTH ASSOCIATION.

The fiftieth annual meeting of the American Public Health Association will be the occasion of a Health Fortnight. From November 8-19, New York City will be the scene of activities connected with this event, and the publicity with its slogan, "Health First," will stimulate interest throughout the country.

Health Fortnight will include three major divisions—a Health Institute from November 8-11; a Health Exposition, November 14-19; the Fiftieth Annual Meeting of the American Public Health Association, November 14-19. Representatives from virtually every state in the Union and from many foreign countries will participate in the extensive program.

November 13 will be observed as Health Sunday in many churches. Health Day will also be observed in the synagogues and in numerous business and social organizations. Speakers prepared to talk authoritatively on health topics will be furnished on request to any of those organizations. The New York County Chapter of the American Red Cross is coöperating with the general committee in the arrangement for this service.

Every legitimate means will be utilized to promote attendance at the Exposition, for this will be the most effective way in which the message of Health Fortnight may be brought to the public. The profits from the sale of tickets, after the cost of the Exposition and the Convention are defrayed, will be devoted to establishing nutritional clinics for the benefit of undernourished children. In this connection, Dr. Royal S. Copeland, Health Commissioner of the City of New York, will present a series of educational exhibits in which instruction in the feeding of children will be featured.

About 40 demonstrations have been planned. The Institute is sponsored by the American Public Health Association, the Health Department of the City of New York, the New York State Department of Health, the U. S. Public Health Service, the National Health Council, and the Committee on Public Health of the New York Academy of Medicine, with the cooperation of approximately one hundred other organizations. The chairman of the committee in charge is Dr. W. A. Evans. The director of the Institute is Dr. D. B. Armstrong of the National Health Council.

The sessions will begin on November 14, and the headquarters will be at the Hotel Astor, Broadway and 44th Street.

The scope of the meetings is indicated by their division into the following: General Sessions, Public Health Administration, Child Hygiene, Public Health Publicity and Education, Laboratory Section, Vital Statistics Section, Industrial Hygiene Section, and Food and Drug Section. Speakers before these sections will include health workers of world-wide repute.

It is almost unprecedented to find an organization celebrating its semi-centennial, while its founder is on the verge of marking his own centennial. This is the case, however, with the American Public Health Association, for its founder, Dr. Stephen Smith, whose portrait was recently published in this Journal, although in his 99th year, is still active and will participate in the meeting. A banquet will be held in Dr. Smith's honor as a part of the semi-centennial celebration.

Further information regarding the semi-centennial may be obtained from the American Public Health Association, 370 Seventh Avenue, New York City.

### THE TUBERCULOSIS INSTITUTE.

The Tuberculosis Institute will conduct meetings at the Massachusetts General Hospital, October 26 and 27, from 10 A.M. to 12.30 M., and from 2 P.M. to 4 P.M. each day, under the auspices of the Boston Tuberculosis Association.

A luncheon is to be served on the grounds of the Hospital at 12.45 each day, and the Association hopes that many of the physicians who attend the Institute will participate in order that they may become better acquainted and meet visiting physicians.

A copy of the following letter is being sent to all the doctors in Boston and Greater Boston:

*My dear Doctor:—*

The Boston Tuberculosis Association will hold an Institute for Physicians, at the Amphitheatre of the Massachusetts General Hospital, for two days, Wednesday and Thursday, October 26 and 27, on various subjects pertaining to pulmonary tuberculosis.

There will be a number of speakers who are well worth hearing, as well as clinics and demonstrations. A complimentary luncheon will be served each day to all those attending this Institute. I am, therefore, enclosing a return postal card and wish to have your reply as early as possible in order to complete arrangements for the luncheon.

I would strongly urge you to come to these meetings which offer an unusual opportunity of obtaining knowledge in regard to the recent advances in the study of pulmonary tuberculosis.

Sincerely yours,

Cleaveland Floyd,
*Chairman of Committee.*

BOSTON INSTITUTE OF TUBERCULOSIS COMMITTEE.

*Chairman*, Cleaveland Floyd, M.D.
Edward O. Otis, M.D.
William C. Woodward, M.D.
John B. Hawes, 2d, M.D.
Randall Clifford, M.D.

The program is as follows:

BOSTON TUBERCULOSIS ASSOCIATION.
INSTITUTE FOR PHYSICIANS.

*Morning, Wednesday, October 26, 1921, Dr. Floyd presiding.*

10-11—Subject, Tuberculosis in the Community; speaker, Dr. James Alexander Miller, President, National Tuberculosis Association, New York City.

11-11.15—Subject, Regional Anatomy of the Lungs; speaker, Dr. Alexander S. Begg, Professor of Anatomy, Boston University, School of Medicine.

11.15-11.35—Subject, Pathology of Tuberculosis, with specimens; speaker, Dr. Lawrence W. Smith, Department of Pathology, Harvard Medical School, Boston, Mass.

11.35-12.05—Subject, Relation of Boards of Health to the General Practitioner in the Handling of Tuberculosis; speaker, Dr. Wm. C. Woodward, City Health Commissioner, Boston, Mass.

12.05-12.35—Subject, Aid which the State Offers in Controlling Tuberculosis through State Sanatoria and Consultation Clinics; speaker, Dr. Eugene R. Kelley, State Health Commissioner, Boston, Mass.

*Afternoon, Wednesday, Dr. Hawes presiding.*

2-3—Subject, What may be Expected from Sanatorium Treatment: speaker, Dr. Vincent Y. Bowditch, Director, Sharon Sanatorium, Sharon, Mass., and ex-President, Massachusetts Tuberculosis League.

3-4—Subject, Common Pulmonary Diseases Confused with Tuberculosis; speaker, Dr. Edward O. Otis, Professor, Tufts College Medical School, Boston, Mass., and President Massachusetts Tuberculosis League.

*Morning, Thursday, October 27, 1921, Dr. Floyd presiding.*

10-11—Subject, Early Diagnosis of Tuberculosis; speaker, Dr. Lawrence Brown, Saranac Lake, N. Y., Trudeau Sanatorium.

11-11.30—Subject, Artificial Pneumothorax and Postural Rest in the Treatment of Tuberculosis; speaker, Dr. Cleaveland Floyd, Director of the Outpatient Clinic, Boston Consumptives' Hospital.

11.30-12.30—Subject, Clinical Physical Signs of Tuberculosis; speaker, Dr. Richard Cabot, Professor of Medicine, Harvard University.

*Afternoon, Thursday, Dr. Hawes presiding.*

2-3—Subject, Laboratory Aids in the Diagnosis of Tuberculosis; speaker, Dr. Frederick T. Lord, Visiting Physician, Massachusetts General Hospital, Boston, Mass.

3-4—Subject, Correlation of Clinical Finding and X-ray in Cases of Tuberculosis; speakers, Dr. John B. Hawes, Director of Clinic on Pulmonary Diseases, Massachusetts General Hospital, and President Boston Tuberculosis Association; Dr. Geo. W. Holmes, Roentgenologist, Massachusetts General Hospital, Boston, Mass.

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The Journal was in error in announcing that the Tuberculosis Institute at the Massachusetts General Hospital would be open to all physicians who might be interested. The facilities of the hospital at the present time do not warrant a general invitation.

## NATIONAL ORGANIZATION FORMED TO CREATE A GREATER APPRECIATION OF THE IMPORTANCE OF EYE CARE.

DR. THOMAS D. WOOD of Columbia University, prominent in educational circles and chairman of the Joint Committee on Health Problems in Education of the National Council of the National Educational Association and the A. M. A., gave some very illuminating facts concerning the great need for the care of the eye sight of school children.

"It seems to me," said Dr. Wood, "that our humanistic problems today present themselves in increasing numbers in our complex civilization, as problems requiring solution in the field of what we are to do for efficiency, for success, if we test these different programs by the criteria of good business.

"The eyes are the windows of the brain, and the eyes make up the most important channel through which the human brain and the mind get its material for fabrication. While we know from the examples of Laura Bridgeman and Helen Keller, what marvellous development may occur through the motor sense or senses, when vision and hearing are absent, we still appreciate the importance of the eyes.

"The consideration of the eyes involves not only the question of the quantitative capacity of the human eye for receiving impressions, but it involves the vital problem of how accurate the information is which the mind, the brain, receives through the eye. Inaccurate information is more serious than decreasing quantity.

"Education involves in a general way, first, the abundance of instruction, that the information which comes to the child's mind shall be stimulating, interesting, and adjusted appropriately for that child. In the second place, the eye must have not only an abundance of things to see, but the eyes must see them accurately. Accuracy of vision has a vital relationship to integrity or obliquity, not only in the field of vision but in the moral field.

"The problem of the conservation of vision involves three aspects: first, the eyes of the children; second, the character of the materials which they see with their eyes; and third, the conditions of light illumination under which they use their eyes.

"What about the twenty-four million of school children in the United States in the elementary and high schools? We have confidence that of those who have not been examined, from 25% to 40% have errors of vision that should receive attention, should be corrected. We know very well that not a third of the school children of this country are having medical inspection, or any reasonably adequate tests of vision and I am very sure that not a third of those who are tested have these defects of vision adequately and properly corrected.

"We need to awaken the people, in a democracy like ours, to an appreciation of the value and the importance of the eyes of their children, because the mass of the parents of this land have little appreciation of the facts. We need, in the first place, to have all the teachers of the land trained to make their simple tests, to make their simple observations regarding the way in which their pupils are using their eyes. We are never going to solve this problem until we all recognize our own distinctive fields and are willing to enthusiastically and unselfishly coöperate.

"We must have hospitals, nurseries and dispensaries to do their full share with reference to the care of the children's eyes, and we may be heartened by the fact that the defects of human vision in these children represent one of the most hopeful divisions of the health and defects which the children present to us. A larger percentage of the defects of vision can be relatively, effectively corrected with less expense and less difficulty than perhaps is true of any other defect.

"Certainly, so far as the children of this land are concerned, we will be content with nothing less than a program of universal care of the children's eyes. The community, the school, the state, the nation can be content with nothing less than that. It belongs to the rights of citizens and future citizens in a democracy like ours, because I can think of nothing more fundamental with reference to the rights of life, liberty and the pursuit of happiness than the possession of as normal vision as can be made possible to that growing child."

Behind the movement are such men as

*Directors:*

R. C. Augustine, Decatur, Ill.; President Emeritus of the American Optometric Association.

Bailey B. Burritt, New York City; General Director, New York Association for Improving Condition of the Poor.

R. M. Little, New York City; Director of the Safety Institute of America; Member of Executive Committee of the National Safety Council.

L. W. Wallace, Washington, D. C.; President of the American Society of Industrial Engineers; Ex-Secretary, Federated American Engineering Societies.

Cassius D. Wescott, M.D., Chicago, Ill.; Chairman of Committee on Conservation of Vision of the Council on Health and Public Instruction of the American Medical Association.

*Board of Councillors:*

Arthur L. Day, Ph.D., Washington, D. C.; Director of Geophysical Laboratories of Carnegie Institution of Washington.

Frederick R. Green, M.D., Chicago, Ill.; Secretary of Council on Health and Public Instruction of the American Medical Association.

Allan J. McLaughlin, M.D., Washington, D. C.; U. S. Public Health Service.

W. S. Rankin, M.D., Raleigh, No. Car.; State Health Officer of North Carolina; Member Executive Committee American Public Health Association.

G. E. Sanford, West Lynn, Mass.; President American Society of Safety Engineers.

Thomas D. Wood, M.D., New York City; Teachers' College Columbia University, Chairman Joint Committee on Health Problems in Education of National Council of National Educational Association and A. M. A.

*Officers:*

L. W. Wallace, President; Cassius D. Westcott, M.D., Vice-President; Guy A. Henry, General Director.

This gigantic task is being undertaken by an organization formed for that special task: The Eye Sight Conservation Council of America, with headquarters in New York City. It is supported by voluntary contributions. Any person interested in the purpose of the organization is eligible to membership.

## Correspondence.

### NATIONAL TUBERCULOSIS ASSOCIATION.

*Mr. Editor:*

The fight against tuberculosis is clearly moving toward victory. The death rate from this disease has fallen to the remarkably low level of approximately 120 per 100,000 population. This represents a saving of over 75,000 lives a year as compared with the death rate of 15 years ago, when we started the fight.

Every magazine and newspaper that coöperated in the work during former years deserves to share in the credit. But there are still 1,000,000 active cases of tuberculosis in this country and over 130,000 deaths yearly.

It is essential, therefore, to intensify publicity regarding methods by which the individual may guard against the disease. You can help this year by supporting the Fourteenth Annual Christmas Seal Sale, our combined educational and financial effort carried on throughout the country.

Very truly yours,

PHILIP P. JACOB,
*Publicity Director.*

[Note: Every doctor should help.—EDITOR.]

### THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

*Mr. Editor:*

The American Society for the Control of Cancer announces a seven days' campaign to be designated "Cancer Week," from October 30 to November 5. The purpose of the movement is to reach as many persons as possible in the United States and Canada, with the vital message of Cancer Control. Committees have been established in all parts of these countries; lecture bureaus, made up of interested and authoritative speakers, have been formed, and the campaign will be conducted in accordance with a plan to be announced.

Naturally the success of even so conservative a campaign depends largely upon the character and extent of the publicity given; while supplementary information from reliable resources by medical writers will be of the greatest value in creating interest and disseminating facts concerning cancer. Your fullest coöperation is, therefore, earnestly requested.

There is probably no preventive medicine campaign of more vital importance to all classes of people, nor one which gives promise of greater interest or more hope. It is significant that the death rate from this disease has been arrested. Since 1916 it has remained practically stationary, with only minor fluctuations. This is the most encouraging

thing which has happened since the Society was organized in 1913, and leads us to believe that united effort by all coöperating agencies will not only prevent a further increase in this rate, but will effect a continuous decrease.

We feel that no small part in the past attack on this insidious disease has been played by writers in medical journals and the lay press; and it is confidently hoped that you will now "carry on" even more determinedly in the attempt to rout this, one of the last of the so-far uncontrolled scourges.

Faithfully yours,

F. J. OSBORNE, *Executive Secretary.*

[Note: The State Committee will prepare a program which will be published at an early date.—EDITOR.]

## REPLY TO CRITICISM OF CIVIC ALLIANCE STATEMENT.

October 1, 1921.

*Mr. Editor:*

In your issue of September 22nd, which today has come to our attention, you misrepresent the Civic Alliance when you allege, without crediting us with the qualification we used, that our letter "suggests that the President of the United States will be open to Republican Counsel." We never suggested this.

The Alliance letter intimated the belief, based on certain facts, which we did not outline, that the President may not have been open to Republican counsel on the side against the Sheppard-Towner bill, by which we meant such counsel of certain prominent Republican Senators as have strongly opposed the bill. Our prophecy, right or wrong, was one merely of our belief that the President will be open to such counsel *provided he can be disillusioned.*

You then make this half statement of what our sentence contained the basis of your complaint that the Alliance "adopts distinctly partisan methods in appealing to Republicans for the use of influence with the President and Congress." The Civic Alliance is not afraid of terms Republican, Democratic, etc., and will use them whenever they bring out truth and fact. Had you given your readers the benefit of our letter, they would see that it consists of an appeal "to prominent business men" and "to other strong citizens to induce them to write immediately," while its accompanying circular which gives the endorsement of Madam Kollontai's book by the Children's Bureau and quotes from her recent writings against the home and the family, is addressed "to voters."

"*Distinctly partisan methods* in appealing to Republicans," which you charge the Alliance with adopting, would have some partisan indication as being addressed to or for Republicans, which neither the letter nor circular had. Therefore, your plea that "There are many in both our great parties who are unselfishly devoted to all questions which should arise above party interests and this is one of them," is gratuitous.

But more than this. Your seeking to minify warning of the danger from the propaganda of Madam Kollontai, who is the Bolsheviki Commissar of Public Welfare, and from the alleged spreading of her feminist errors by some of the unsuspecting women proponents of the Sheppard-Towner bill in America, is virtually attacking carefully collected and authoritative evidence of your friends and helpers, including organizations of women, and Doctors, throughout the United States.

Such an editorial, from your standpoint of protecting the medical profession, instead of advancing its cause, is inexplicable if you truly believe your interests are virtually at stake in the pending legislation.

EBEN W. BURNSTEAD, *Secretary,*
The Massachusetts Civic Alliance, 50 Bromfield Street, Boston.

[Note: Readers of the JOURNAL are respectfully requested to read the circular in question of the Massachusetts Civic Alliance, compare it with the editorial comment, and make their own interpretation. The question is: Why were Republicans mentioned as such? In matters of great public importance, fair-minded men of other parties have influence, and their opinions are given weight. We will progress faster and accomplish more if we keep the suggestion of politics out of the consideration of public health matters.—EDITOR.]

## EXAMINATIONS OF CANDIDATES.

Examinations of condidates for entrance into the regular corps of the U. S. Public Health Service will be held November 14, 1921, at Washington, D. C., Chicago, Ill., and San Francisco, Calif.

Candidates must be between 22 and 32 years of age and graduates of a reputable medical school. They must pass satisfactorily oral, written and clinical tests before a board of medical officers.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

## GROUP MEETINGS.

As reported at the Council meeting, following are the group meetings for the District Societies:

Group I in Springfield at the Kimball Hotel, on October 7. Group II at Clark University, Worcester, October 12. Group III, October 29, at the Tufts College Medical School. Group IV has been invited by Dr. Pettingill to meet at the Tuberculosis Sanatorium in Middleton, November 2. Group V on October 26 at the Boston Medical Library. Group VI has been invited by Dr. Sumner Coolidge to meet at the Lakeville Sanatorium the second week in November.

The composition of the groups is as follows:

| *Group I* | *Group II* | *Group III* |
|---|---|---|
| Berkshire | Worcester | Middlesex South |
| Hampden | Worcester North | Norfolk |
| Hampshire | | Norfolk South |
| Franklin | | |
| *Group IV* | *Group V* | *Group VI* |
| Middlesex North | Suffolk | Plymouth |
| Middlesex East | | Barnstable |
| Essex North | | Bristol South |
| Essex South | | Bristol North |

## CENSORS' MEETING.

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8, The Fenway, Thursday, November 3, 1921, at 4 o'clock.

Candidates should make personal application to the Secretary and present their medical diploma at least one week before the examination.

RICHARD MILLER, *Secretary.*
402 Marlborough Street.